PAPER TRADE JOURNAL

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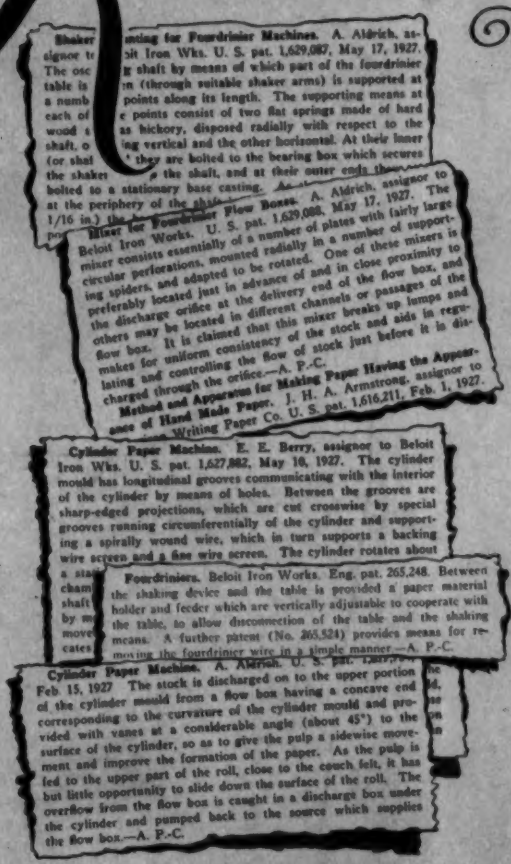
"KEEPING UP"



...ning for Fourdrinier Machines. A. Aldrich, as-
...signor t... Iron Wks. U. S. pat. 1,629,087, May 17, 1927.
The osc... ...g shaft by means of which part of the fourdrinier
table is ... ...n (through suitable shaker arms) is supported at
a numb... ... points along its length. The supporting means at
each of ... ...e points consist of two flat springs made of hard
wood ... ...as hickory, disposed radially with respect to the
shaft, o... ...ing vertical and the other horizontal. At their inner
(or shaf... ...' they are bolted to the bearing box which secures
the shaker ... the shaft, and at their outer ends they ...
bolted to a stationary base casting. As ...
at the periphery of the shaft ... 1/16 in.) the fourdrinier ...

Mixer for Fourdrinier Flow Boxes. A. Aldrich, assignor to Beloit Iron Works. U. S. pat. 1,629,088, May 17, 1927. The mixer consists essentially of a number of plates with fairly large circular perforations, mounted radially in a number of supporting spiders, and adapted to be rotated. One of these mixers is preferably located just in advance of and in close proximity to the discharge orifice at the delivery end of the flow box, and others may be located in different channels or passages of the flow box. It is claimed that this mixer breaks up lumps and makes for uniform consistency of the stock and aids in regulating and controlling the flow of stock just before it is discharged through the orifice.—A. P.-C.

Method and Apparatus for Making Paper Having the Appearance of Hand Made Paper. J. H. A. Armstrong, assignor to ... Writing Paper Co. U. S. pat. 1,616,211, Feb. 1, 1927.

Cylinder Paper Machine. E. E. Berry, assignor to Beloit Iron Wks. U. S. pat. 1,627,882, May 10, 1927. The cylinder mould has longitudinal grooves communicating with the interior of the cylinder by means of holes. Between the grooves are sharp-edged projections, which are cut crosswise by special grooves running circumferentially of the cylinder and supporting a spirally wound wire, which in turn supports a backing wire screen and a fine wire screen. The cylinder rotates about a stat... cham... shaft ... by m... move... cates ...

Fourdriniers. Beloit Iron Works. Eng. pat. 265,248. Between the shaking device and the table is provided a paper material holder and feeder which are vertically adjustable to cooperate with the table, to allow disconnection of the table and the shaking means. A further patent (No. 265,524) provides means for removing the fourdrinier wire in a simple manner.—A. P.-C.

Cylinder Paper Machine. A. Aldrich. U. S. pat. ... Feb 15, 1927 The stock is discharged on to the upper portion of the cylinder mould from a flow box having a concave end corresponding to the curvature of the cylinder mould and provided with vanes at a considerable angle (about 45°) to the surface of the cylinder, so as to give the pulp a sidewise movement and improve the formation of the paper. As the pulp is fed to the upper part of the roll, close to the couch felt, it has but little opportunity to slide down the surface of the roll. The overflow from the flow box is caught in a discharge box under the cylinder and pumped back to the source which supplies the flow box.—A. P.-C.

IN this day and age, industry must be ever on the alert for new ideas. Industrial progress has been so rapid, competition so keen and inventive genius so masterful, that to stand still is to go backward.

In the field of papermaking, the Beloit Iron Works, with a background of 70 years of experience, was not satisfied to rest upon its laurels. When the so-called "machine age" hit industry, **Beloit** engineers applied themselves to the new order of things, even before a demand was evident. The pioneering of such outstanding engineering successes as the Removable Fourdrinier and the Adjustable and Variable Aldrich High-Speed Shake are but a few of the evidences of **Beloit** progress.

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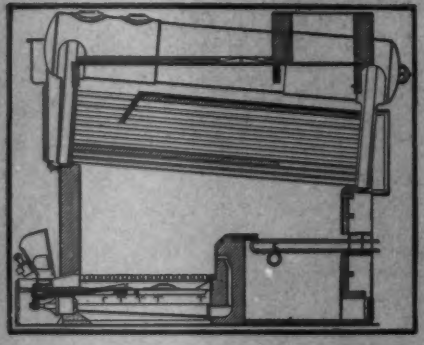

Cross section of Heine Boilers and Type E Stoker installation at Milwaukee plant.

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A SUBSIDIARY OF INTERNATIONAL COMBUSTION ENGINEERING CORPORATION

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PAPER TRADE JOURNAL
ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SIXTH YEAR

Published Every Thursday by the

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PAPER TRADE JOURNAL

With Which Is Combined

Vol. LXXXVI, No. 24 PAPER Thursday, June 14, 1928

Waxed Paper Industry Adopts Rules of Practice

At Trade Conference Held in Washington, D. C., Last Week, Before Federal Trade Commissioner C. W. Hunt, Fourteen Rules Were Unanimously Adopted by the Waxed Paper Manufacturers—Will Now Be Submitted to Full Commission for Approval or Disapproval—Each Rule Discussed Separately Before Being Voted Upon

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 13, 1928.—At a trade practice conference held here last Thursday before Federal Trade Commissioner C. W. Hunt, the waxed paper industry adopted fourteen rules of practice which will be submitted now to the full Commission for its approval or disapproval. Commissioner Hunt was assisted by Markham M. Flannery, director of the Trade Practice Conference Division of the Commission.

In connection with the adoption by the conference of the proposed rules Commissioner Hunt indicated that in his opinion the Commission would refuse to accept two of them. These two include No. 12 dealing with the discrimination in price by means of split shipments and No. 14 dealing with delivery points.

The conference was opened by Commissioner Hunt who explained in a few words the purpose of the trade practice conferences. He was followed by Paul S. Hanway, manager of the American Waxed Paper Association, who made a brief statement in connection with the industry itself. This was followed by taking up each rule separately the case being stated by one of the paper manufacturers present and voted on. In every case the vote was unanimous. There were present others outside of the membership of the association and letters and wires were presented showing that at least 85 per cent of the production in the industry approved the new rules.

Discussion by Manufacturers

Rule No. 1 on the repudiation of contracts was discussed by R. B. Donnelley, of the Central Waxed Paper Company, Chicago, president of the association.

Rule No. 2 on inducing breach of contract was discussed by Karl Zimmer of the Otsego Waxed Paper Company, Otsego, Mich.

Rule No. 3 on ambiguous or incomplete contracts was discussed by Edgar L. Berkley, of the Waxide Paper Company, of Kansas City, Mo.

Rule No. 4 on the deviation from standards was discussed by Winthrop L. Carter, of the Nashua Gummed and Coated Paper Company, of Nashua, N. H.

Rule No. 5 on the imitation of trade marks or trade names was discussed by C. R. Wright, of the Waterproof paper and Board Company, of Cincinnati, Ohio.

Rule No. 6 on the enticement of employees was discussed by S. J. Eisner, of the Newark Paraffine and Parchment Paper Company, of Newark, N. J.

Rule No. 7 on the defamation of a competitior or disparagement of his goods was discussed by A. Havemeyer, of the Package Paper Company, Springfield, Mass.

Mr. Havemeyer also discussed Rule No. 8 dealing with threats of suits for patent or trade mark infringement.

Rule No. 9 on the discrimination in price by means of free etchings or plates was discussed by Ralph A. Hayward, of the Kalamazoo Vegetable Parchment Company, of Kalamazoo, Mich.

Mr. Hayward also discussed Rule No. 10 dealing with the discrimination in price by means of ink coverage.

Rule No. 11 on the use of inferior materials was discussed by E. A. Meyer, of the Menasha Printing and Carton Company of Chicago.

Rule No. 12 on the discrimination in price by means of split shipments was discussed by George H. Gardner of the Menasha Printing and Carton Company, of Menasha, Wis.

Rule No. 13 dealing with the selling of goods below cost was discussed by William J. Eisner, of the Newark Paraffine and Parchment Company, of Newark, N. J.

Rule No. 14 on delivery points was discussed by J. D. Goldberg, of the Hamersley Manufacturing Company, of Garfield, N. J.

Others Attending Conference

Among others attending the conference in addition to those already mentioned were: Franklin D. Jones, counsel for the association; Arthur W. Moore, of the Shawmut Waxed Paper Company, Holliston, Mass.; Emile Frisch, American Bread Wrapper Company, Chicago; E. A. Gould, Waxed Products Company, Brooklyn, N. Y.; A. F. Gluck, Coated Paper Products Company, Minerva, Ohio; F. D. Bullock, Saniwax Paper Company, Kalamazoo, Mich.; Charles H. Cashmore, Paterson Parchment & Paper Company, Passaic, N. J.; George G. Mills, Sterling Waxed Paper Company, Passaic, N. J.; Russell A. Buhrer, Union Waxed and Tissue Paper Company, Hamburg, N. J.; D. Kuhmarker, Kuhmarker Paper Company, New York City; Benjamin H. Ballard, Warren Manufacturing Company, New York City; E. A. Clark, Nashua Gummed and Coated Paper Company, Nashua, N. H.; J. T. O'Rourke, American Bread Wrapper Company, Chicago, and others.

Mr. Hanway announced at the conclusion of the conference that in addition to those present, the rules as adopted had been approved by the following: Pacific Paper Products Company, American Tissue Mills, Gem Wax Paper Company, Safety Glass Company, Demon Wing Paper Company, H. P. Smith Paper Company, Wax Paper Products Company, Henley Wax Paper Company, Cleveland Wax Paper Company, National Waterproofing Company, and others. It was estimated that at least 85 per cent of the industry had approved the rules. The members of the asso-

(*Continued on page 29*)

Demand For Paper Somewhat Spotty In Toronto

Request for Bond, Ledger and Writing Papers Inclined to Fluctuate From Week to Week—Good Call for All Lines of Fine Papers—Paper Converting Trade Quite Active for the Season—Board Mills Continue Busy—Waste Paper Market Rules Firm

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, June 11, 1928.—The first half of the present year is closing with a good record of business to the credit of the wholesale paper trade in Ontario, although at the moment business is a little spotty in some lines. In nearly all sections, however, the first six months of 1928 have surpassed the record for the same period of last year and there is a feeling that the summer months, even making allowance for the holiday season, are going to yield good business.

Practically all lines of fine papers are in fairly good demand, the call for book papers being especially good, while bond, ledger and writing lines are in good requisition one week, with a falling off the next. This spotty tendency developed within the past few weeks but on the whole the tonnage being sold is keeping up quite well. The printing trade in Toronto is busy, with the industry making satisfactory requisitions for paper of all kinds.

The coarse paper section is not as busy as it would like, although there is some tendency to bigger lot buying than there has been for some time. The paper converting trade is quite active and although this is the off season for the envelope trade some of the firms report a well sustained demand, especially for open-end envelopes and specialty lines. Standard envelope lines are feeling the effects of the approaching summer when, as a rule, business in this line falls off. There is a good demand for Canadian-made blottings, manilas and blanks.

In paper manufacturing circles, outside of news print, there is no reason to complain of volume production and ready sale. For instance, book mills have orders on hand that will take them well into the summer months, while manufacturers of bonds, ledgers and writings are busy with current orders, although there is no great tonnage booked ahead.

Board mills are busy and the paper box industry is using a satisfactory amount of stock. The light weight paper manufacturers, while not so busy as they were at this time last year, are making more money, for they have eliminated some unprofitable lines and have not yet caught up with the usual tonnage in their standard lines. There is a good demand for all classes of tissues and toilets, together with crepe specialty lines for decorative purposes, napkins and towels. The waste paper market is firm with large sales to the paper mills.

Pulpwood Impost Forcast in House

Intimation of an impost upon the exportation of pulpwood was given in the House of Commons a few nights ago by the Hon. Charles Stewart, Minister of the Interior. "The department," the Hon. Mr. Stewart said, "has been giving the question of an export tax some consideration, and I confess that it appeals very strongly to me." However, there were difficulties in the way of such a tax, the Minister added. One of them was that in its immediate effect it was a tax that would be borne by the Canadian who sells the wood. "He would have to accept a reduction in price," Mr. Stewart said. "In the Maritimes and Quebec the competition due to the export of pulpwood increases the prices. There may not be a great deal in the argument. I am interested in the tax proposal because 50 cents or $1 a cord would provide money for the extension of fire protection activities without further calls on the treasury."

Another objection to the tax was that a large proportion of the pulpwood was under contract to United States concerns. C. H. Dickie, Conservative member for Nanaimo, B. C., brought up the question of an export tax. He pointed out that last year Canada exported 1,500,000 cords of pulpwood and timber to "enhance the prestige and prosperity of the United States." Had this wood been manufactured in Canada it would have produced $80,000,000 worth of paper, whereas only $15,000,000 had been received for it. Mr. Dickie declared that the end of this country's supply of pulpwood was in sight. "We are bribing people to go on the land here, there and everywhere, and not building up our industries," the British Columbia member declared. "It costs $25 a cord to raise spruce, according to experts, and we are selling it out of the country for $10 a cord." He did not favor an embargo, but advocated an export tax.

A Fine Interlake Tissue Display

A feature of the 31st annual convention and exposition of the International Association of Display Men held June 11-14 at the Canadian National Exhibition in Toronto, was a display by the Interlake Tissue Mills, Ltd., Thorold, Ont., which revealed to the display men the possibilities of the use of crepe paper in reproducing any desired color effect in the production of backgrounds, screens, scenes, etc. The firm's demonstration was designed to show that crepe paper was the most economical medium that there is for modern display purposes and the artistically decorated booth in itself indicated what could be done in window and other display by the use of the gayly colored crepe and other tissue paper lines. The display attracted a great amount of attention from the several thousand delegates from all over Canada and the United States.

New Abitibi Office for Toronto

While no announcement was forthcoming following a meeting of shareholders of Spanish River Pulp and Paper Mills in connection with the taking over of that company by the Abitibi Power and Paper Company, it is generally understood that the change will mean that the actual head office of the merged companies will be in Toronto, with a large staff, although the statutory head office will be at Iroquois Falls, Ont. The head office of the Spanish River Pulp and Paper Mills has been in the Bank of Hamilton Building in Toronto, where Secretary J. G. Gibson and a staff had charge of an executive staff. What proportion of the staff will be absorbed by Abitibi has not yet been announced but it is understood to be the intention of Abitibi to close the present Toronto office and establish a more pretentious one in Toronto. There is a good deal of speculation as to how many of the old executive officers of the Spanish River will be taken into the merged company, but already the company has laid off many of the men and some of the minor officials largely on the score of lessened demand for news print.

A Valuable Paperboard Report

Containing much interesting information on the progress in Canada in the manufacture of paper board and cardboard, the Department of the Interior at Ottawa has just issued a report, in which the condition of the domestic market and the opportunities for Canadian manufacturers in foreign trade are dealt with. Prepared with the co-operation of the Dominion Bureau of Statistics, the Foreign Tariff Division of the Department of Trade and Commerce and the Forest Service of the Department of the Interior, the report contains detailed information on the classification and definitions of paperboard and cardboard products, the uses of paperboard, Canadian production, imports and exports, the domestic markets, Canadian and foreign tariffs. The foreign trade of the principal manufacturing countries in paperboard is dealt with at length. New and extraordinary uses for paperboard

containers in the shipping and marketing of a large variety of merchandise and foodstuffs, it is pointed out, are resulting in a constantly expanding field for manufacture of these products. Larger quantities of paperboard are also being used each year for building and insulating purposes. Canada's paperboard mills are entirely in the East as are also the paperbox plants with the exception of a few at Winnipeg, Edmonton and Vancouver. A map which accompanies the report shows the distribution of these industries, principally along the St. Lawrence River and in Southern Ontario, with Toronto the center at which the greatest number of plants are located. The fact that paperboard is largely manufactured from waste paper would indicate that there are opportunities at or near centers of population in Western Canada for the manufacture of this material. This is further borne out by the fact that the Hinde & Dauch Company will erect a board mill at Winnipeg.

Litigation Over Abitibi Merger

Despite the fact that lawyers acting for M. J. Chase & Co. filed affidavits opposing the merger between Abitibi Power and Paper Company, which will lead to litigation, Justice Middleton, at Osgoode Hall, Toronto, this week, issued an order approving the sale or arrangement for the transfer of the whole business and property of the Spanish River Pulp and Paper Mills, Ltd., to the Abitibi Power and Paper Company, as provided for in an agreement between the two companies. The agreement provides for the transfer of the entire property and assets of the Spanish River to the Abitibi company for a consideration of common and preferred shares of the Abitibi company, the payment by the latter of the mortgage bonds of the Spanish River and the Ontario Paper Company at par and accrued interest, plus a premium of ten per cent., and the assumption by the Abitibi company of all other debts and liabilities of the Spanish River company. The amalgamation is the logical outcome of the offer made the Abitibi company in October of last year to the common shareholders and which was accepted by 92 per cent of them. These offers were made under a plan for consolidating with the Abitibi company, the Spanish River company, the Fort William Power Company, Ltd., and other companies owning news print plants in Manitoba and Quebec, under one directorate and management. G. T. Clarkson, of Toronto, is the liquidator of the Spanish River company. In the meantime the M. J. Chase Company, of New York, holders of $2,000,000 bonds of Spanish River, have commenced proceedings at Osgoode Hall for an injunction restraining the companies concerned and the liquidator of Spanish River from taking any further steps towards transferring the assets of the latter company to the Abitibi company on the ground, among other things, that the deal is for the purpose of defeating the just rights of the bondholders, and for the purpose of benefiting the shareholders of Abitibi rather than those of Spanish River.

New Stock Regulator for Paper Machines

August Kolitsch, an experienced machine-tender at the Port Alfred Pulp and Paper Mills, is the patentee of an automatic regulating device which is interesting news print manufacturers. Hitherto paper makers have had to keep a watchful eye on the vacuum gauge of either the flat suction boxes or the suction couch roll. An increase in vacuum reading meant that the stock on the wire was too heavy and that the paper would be overweight. If the vacuum showed a decrease in reading the paper maker know that the sheet would be under weight. As soon as this deflection was noticed, the tender at the wet end of the machine would immediately make a very slight adjustment to the amount of stock flowing to the wire. This adjustment was, of course, done by hand. Now the same operation can be accomplished automatically by Mr. Kolitsch's invention. The device might be said to regulate the regulator. It is particularly suitable to news print machines where the weight of paper is to be kept constant. The change in vacuum deflects a specially manufactured half sphere against which rests a metal pin, the opposite end of this pin being the plunger of a needle valve. Compressed air at about 20 pounds pressure, reduced from the main air line by a regulating valve, is then brought into action and is controlled by the needle valve. This valve admits varying air pressure to a rubber diaphragm which actuates the gate, which in turn controls the flow of the stock from the regulating box to paper machine wire. A very accurate adjustment is said to be obtainable by this system. A difference of one pound in the weight of paper passing over the couch roll will move the gate about one-eighth of an inch. Mr. Kolitsch expects to have his device on the market very shortly. He is at present working on an added improvement which will, through a simple electrical apparatus, indicate in the screen room the changes of stock conditions which are taking place at the wet end of the paper machine.

Paper Box Men to Meet in Convention

The program for the thirteenth annual convention of the Canadian Paper Box Manufacturers' Association, Inc., to be held at the Clifton Hotel, Niagara Falls, Ont., on June 18 and 19, has just been issued from the secretary's office in Toronto. Among the speakers at the first day's session will be Howard P. Beckett, Commissioner National Paper Box Manufacturers' Association, on "Adjusting Our Sense of Values"; Professor G. E. Jackson, of the University of Toronto, on "Seasonal Influences on Canadian Business", and W. J. Cannon, on "Steadfastness To Your Association". Speakers on June 19 will be C. W. Perry, of Reliance Engravers, Toronto, on the subject of color in the paper box industry; G. M. Hobart, of the Somerville Paper Boxes, Ltd., London, on "Cost, Its Relation to the Individual Job," and Rev. W. Harton, of Lundy's Lane. Entertainment features include golf games and sight-seeing around the Falls. Already there is a large registration promised and the convention is expected to be the largest the organiation has yet held.

Notes and Jottings of the Trade

L. E. Fleck, head of the Georgetown Coated Paper Mills, Ltd., at Georgetown, near Toronto, entertained the members of the Canadian Business Publishers' Association and their wives at the annual golf tournament at the Halton Golf and Country Club, a few years ago, when one of the entertainment features was a trip through the mill by the guests. Following the golf games in the afternoon, dinner was served at the club house. The Garden City Cup was won by Fred Halliday, with A. M. Fisher runner up. The lady's first prize was won by Mrs. Halliday and the second by Mrs. Weston Wrigley. Practically all of the business, trade and class papers published in Toronto were represented in the party.

The Firstbrook Box Company, of Toronto, manufacturers of paper boxes, wooden boxes and corrugated board boxes, have decided to build a plant at Mount Dennis, a short distance out of the city, at a cost of $350,000. The company have purchased ten acres on the Trethewey estate and will erect two brick buildings in which will be employed about 350 men. Work will start within the next three weeks and the building will be completed before the end of the year. It has not been stated what proportion of the new plant will be devoted to the manufacture of paper boxes.

The Guelph Paper Box Company, Ltd., Guelph, Ont., expect to move into their new addition, which has just been completed, at the end of this month. The addition is a two-story and basement structure. The basement will be used as a store room for stock and the upper floors for working space.

George W. Pauline, head of Ritchie & Ramsay, coated paper manufacturers, at New Toronto, has returned from a successful business trip through the Canadian West and reports considerable optimism in the paper trade and other lines as the result of the bright crop outlook in the Prairie Provinces.

Wisconsin Paper Men Glean New Safety Ideas

Progress Made During Past Year Recorded at Fourth Annual Fox River Valley Safety Conference Last Wednesday—Notable Addresses Given at Sectional Meeting Devoted to Paper and Pulp Industry—Next Year's Conference to be Held at Manitowoc

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., June 11, 1928.—Paper mills were represented by hundreds of men at the Fourth Annual Fox River Safety Conference at Oshkosh, Wis., on Wednesday of last week. The total attendance exceeded 1,000, and considerable satisfaction was expressed for the new ideas of safety and the progress of the last year as recorded at the sessions.

Because of the fact that paper mills have been practicing safety for a longer period than most other industries and consequently have the best record in this respect, cities in which they are located could not win the banner awarded at the conference to the city having the highest percentage in reduction of accidents for the past year. The banner went to Oshkosh, which has no paper mills at all and has not been as active along safety lines until recently. The accident reduction there was 40 per cent.

Sheboygan, Wis., was in second place in the banner contest, with a reduction of 26 per cent. Green Bay, Wis., where paper mills represent only a small part of the industry, came third with a 14 per cent reduction. Cities where paper mills predominate had no such records to offer, as they are enjoying enviable safety records and scoring high in national contests.

Next year's conference will be held at Manitowoc, Wis., the delegates decided. H. L. Vitz, of that city, who is associated with the Aluminum Goods Manufacturing Company, will be chairman.

Mills were liberally represented at the sectional meeting in the morning devoted to the paper and pulp industry. With W. F. Ashe, of the Thilmany Pulp and Paper Company, of Kaukauna, Wis., acting as chairman, three addresses were given. H. G. Noyes, director of paper and pulp making courses in Wisconsin vocational schools, spoke on "The Foreman—A Teacher of Safety." Mr. Noyes related some of his observations while visiting paper mills all over the state and described the need of constant education among the workers so they will practice safety. Because the foreman is so close to his men, he pointed out, the best teaching is accomplished there. By pointing out continually the instances where safety is neglected, and explaining each situation as it arises, much can be accomplished toward a record without accidents.

"Life, Health and Pursuit of Happiness" was the subject presented by Voyta Wrabetz, of the Wisconsin Industrial Commission. He told of the commission's diligent efforts over a period of years to bring about safer conditions, and mentioned the remarkable progress made along that line. He said the attitude toward safety has changed considerably, and employers are glad to have suggestions now instead of resenting them. He mentioned instances where unsafe conditions were found, and the methods of remedying them.

L. J. Parrish, of the A. O. Smith Corporation, Milwaukee, was the third speaker and his subject was, "A Safety Philosophy." He mentioned the need of creating a sympathetic attitude toward safety on the part of employees and having them take pride in their no-accident records. He described plans used in his organization with good success, and urged greater safety effort and education.

Joint sessions were held in the afternoon and evening. The banquet speaker was Glenn Frank, president of the University of Wisconsin. Opposition to safety was described by the educator as "beach comber philosophy." He illustrated the source of his expression by describing the opposition to establishment of the Cape Cod lighthouse. Beach combers did not want it built because it would injure the wrecking business. Enlightened self interest finally got back of the movement and accomplished the needed purpose, just as it does today.

"Today," said President Frank, "this enlightened self interest is joining hands with a social consciousness that is humanizing industry and making the machine age an age in which human beings can live as well as make a living." The ideal job mixes routine and variety in nice proportions, he further declared. Each such job should include a creative challenge to the working man. Otherwise safety for men's bodies may be a total loss in a few generations.

Nekoosa Machine Shop Completed

A large new machine shop has been completed and is now occupied by the Nekoosa Iron Works and Motor and Machine Company. This new unit is partially two story and the remainder one story. Equipment has been installed so that machinery weighing as high as ten tons can be handled conveniently.

Considerable attention is now given to manufacture of the Nekoosa Giant Bark Press, which was placed on the market recently by M. J. Powers, proprietor. The machine makes available as fuel the bark formerly dumped into the river by paper mills. A fuel value as high as $75 is obtained from 100 cords of wood. Thirty of the presses are now in operation. The company has been in existence for the last ten years and has had steady growth.

Plans for Technical Meeting

D. C. Everest, general manager of the Marathon Paper Mills Company, of Rothschild, Wis., and others, are already laying their plans to entertain the fall meeting of the Technical Association of the Pulp and Paper Industry. The convention will be held at Wausau, Wis., on September 25, 26 and 27. Committees are to be appointed soon to handle the details of program and entertainment. Wausau feels elated over its choice over Richmond, Va., and Buffalo, N. Y. Quite a number of members of the association are located in the Wausau vicinity.

Reforestation Movement

Hearings are being held in several portions of Northern Wisconsin preparatory to entering about 75,000 acres of land under the law which permits them to be set aside for tree growing and thus become tax free until the timber is cut. June 20 is the last date that lands may be entered this year. One of the largest tracts offered for reforestation comes from the Nekoosa-Edwards Paper Company, of Port Edwards. This company plans to set aside for tree growing 29,000 acres in Ashland and Sawyer counties. Some planting already has been done by this company on other lands which it owns. The Connor Lumber Company is also helping in this movement by planting 50,000 trees this year, and expects to start 100,000 next year. A movement is also on foot to establish forest patrol by airplanes so fires can be detected quickly and losses from this source prevented. The suggestion comes from Governor Fred R. Zimmerman and soon may be put into effect.

Mulch Paper Experiments

Quite a bit of experimenting is being done in Wisconsin with mulch paper for gardening and farm crops. Newspapers are giving considerable publicity to the idea and it is gaining favor rapidly. The *Milwaukee Journal* has selected a large experimental garden in the northern part of the state for a series of articles on the results obtained from placing the paper between rows of plants

to hold moisture and keep out weeds. With farming so extensive in the state, a new market for paper is being opened up rapidly.

Alexander Starts Gymnasium Project

L. M. Alexander, president of the Nekoosa-Edwards Paper Company, of Port Edwards, Wis., turned the first spade of dirt Saturday of last week for the new $300,000 gymnasium which is to be built at Lawrence College of Appleton, Wis. Mr. Alexander is president of the board of trustees and the donor of a large sum of money for the gymnasium project.

WAXED PAPER RULES OF PRACTICE

(*Continued from page 25*)

ciation manufacture about 70 per cent of the production.

The rules as they were actually adopted at the conference were as follows:

Rule: *Repudiation of Contracts:* Contracts either written or oral are business obligations which should be performed in letter and in spirit. The repudiation of contracts by sellers on a rising market or by buyers on a declining market is equally reprehensible. Such action shatters confidence, induces violent fluctuations in price, destroys stability in business operations to the consequent injury of the industry as well as the general public and is an unfair trade practice.

Rule 2: *Inducing Breach of Contract:* Inducing or attempting to induce the breach of a contract between a competitor and his customer during the term of such contract when the existence of such contract is known, is an unfair trade practice. Any person whenever notice of the existence of a contract is brought to his attention in any way shall promptly discontinue all efforts which might induce a contracting party to break such contract.

Rule 3. *Ambiguous or Incomplete Contracts:* The making of contracts which do not expressly cover specifications, time for delivery, inspection, filing of claims, and other items necessary to form a complete unambiguous contract often results in price discrimination, induces fraud, breach of contract and constant disputes, which create suspicion and ill feeling in the industry and is an unfair trade practice. It is the judgment of this conference that the industry should adopt in cooperation with buyers a standard form of contract which will avoid ambiguity, prevent misunderstanding, and thoroughly protect the rights of both buyers and sellers.

Rule 4: *Deviation from Standards:* Any deviation from the established standards of the industry causes confusion and waste, affords opportunity for discrimination and fraud and any such deviation unless the buyer is fully informed of the fact is an unfair trade practice.

Rule 5: *The Imitation of Trademarks or Tradenames:* The imitation of the trademark, trade name of a competitor results in the deception of buyers and consumers, is an invasion of the property rights of such competitor and is an unfair trade practice.

Rule 6: *Enticement of Employees:* Interference with a competitor's business through the enticement of employees from his employment is an unfair trade practice.

Rule 7: *Defamation of Competitor or Disparagement of His Goods:* The defamation of a competitor by words or acts imputing to him dishonorable conduct, inability to perform contracts, or questionable credit standing or the false disparagement of the grade or quality of his goods are unfair trade practices.

Rule 8: *Threats of Suits for Patent or Trademark Infringement:* The circularization of threats of suits for infringement of patent or trademark among customers of a competitor is an unfair trade practice. The owner of a patent or trademark should in fairness deal directly with the alleged original infringer rather than attempt to intimidate his customers.

Rule 9: *Discrimination in Price by Means of Free Etchings or Plates:* The furnishing without direct charge based on actual cost of etchings and plates which vary greatly in cost and value results in unfair, indirect discriminations in price between customers, which are in no sense made on account of differences in grade, quality or quantity and is an unfair trade practice. It is the judgment of this conference that a manufacturer should not supply etchings or plates either of new or modified designs for less than the actual cost of such work or materials, as a separate, direct charge, all etchings and plates to be the property of the buyer and subject to his order.

Rule 10: *Discrimination in Price by Means of Ink Coverage:* The quotation of uniform prices by a manufacturer for printed waxed paper regardless of the ink coverage, which varies greatly in cost and value results in unfair, indirect discriminations in price between customers which are in no sense made on account of differences in grade, quality or quantity, and is an unfair trade practice. It is the judgment of this conference that the industry should adopt a reasonable classification of ink coverages and that a manufacturer of printed waxed paper should make differentials in his prices, based on the actual differences in his costs resulting from such different coverages of ink.

Rule 11: *Use of Inferior Materials*: The use of wax which is not fully refined, tasteless, odorless, and of the proper melting point for the purpose for which used, or the use of any inferior material which tends to bring waxed paper into disrepute or to defraud the buyer or the public is an unfair trade practice.

Rule 12: *Discrimination in Price by Means of Split Shipments:* The practice of accepting orders in large quantities for manufacture and shipment in small quantities (known as split shipments) at prices which do not provide for the increased cost of manufacture in such small quantities results in unfair discriminations in price between customers, in practical effect giving quantity prices on small deliveries to favored buyers which are not justified by any reduction in costs to manufacturer because of quantity or any difference in grade or quality and is an unfair trade practice. It is the judgment of this conference that the manufacturer of waxed paper who accepts quantity orders for split shipments should make a differential in price equal to his actual increased costs of manufacture on each split shipment in fixing his sales price.

Rule 13: *Selling Goods Below Cost:* The selling of goods below cost except to meet a price offered by a competitor is an unfair trade practice. Such a practice eliminates competition regardless of its efficiency, results in great loss to the industry, encourages price discriminations which may affect other industries and is an unfair trade practice. It is the judgment of this conference that every manufacturer of waxed paper should install a cost system which will enable him to accurately determine his costs.

Rule 14: *Delivery Points:* The practice of making sales on a f. o. b. mill basis has been long established as a custom in the industry. Much confusion has arisen in the industry causing unfair competition as a result of members of the industry selling their merchandise on a basis of free delivery in some instances and in others selling the same f.o.b. mill. Such a practice causes price discrimination, results in the granting of discounts on transportation charges, upon which the seller himself receives no discount and destroys the basis upon which competition can fairly and openly function.

Canadians To Construct Shartle Equipment

MIDDLETOWN, Ohio., June 11, 1928.—The Shartle Brothers Machine Company, Division of the Black-Clawson Company, Middletown, Ohio, has just completed an arrangement with Waterous, Ltd., of Brantford, Ont., and Charles Walmsley, Ltd., of Montreal, for the construction, in Canada, of their Breaker Beaters and Breaker Beater Systems.

This new arrangement will give the Canadian paper mills the advantages of maximum service on account of the location of these two organizations. The sales of this equipment will be handled as formerly from the Middletown, Ohio, offices of the Shartle Brothers Machine Company.

Paperboard Industries Association Meets

Members of the Paperboard Industries Association met at the Palmer House, Chicago, on Wednesday, May 16, and Thursday, May 17, in group and general sessions. On Wednesday, May 16, members of the folding box group met in the morning, with Vice President H. S. Hinkle, President of the National Folding Box Company, New Haven, Conn., presiding. The meeting of the paperboard group, at which Vice-President E. R. Hankins, of the Container Corporation of America, Chicago, presided, convened in the afternoon.

J. J. Brossard, of the Fort Wayne Corrugated Paper Company, Ft. Wayne, Ind., vice-president of the container group, presided at the meeting of that group, which was held Thursday morning, May 17.

The general meeting of the three groups in joint session, attended by members of the paperboard, container and folding box groups, was held Thursday afternoon, May 17. W. J. Alford, Jr., of the Continental Paper Company, the president of the association, presided at the general meeting.

Three Groups in Joint Session

The general meeting of the association, attended by members of the three groups, convened at 2:15 P. M., Thursday, May 17.

As a first order of business, President Alford announced that a meeting of the executive committee had been held on May 15. He submitted the report of the executive committee, which was unanimously adopted by the membership. In the executive committee's report, mention was made of all subjects considered by the committee, including the following:

1—Association Finances.
2—Visit of Committee representing the National Association of Paper Box Manufacturers.
3—Plan to enforce observance of the carriers' specifications governing fibre boxes.
4—Suggestion with respect to more complete interchange of statistical data, etc., etc.

Report of Group Meetings

As a matter of information for the membership as a whole, President Alford called upon the vice-presidents who had presided at the group meetings, and reports of action taken at the respective group meetings were submitted by:

Vice-President H. S. Hinkle, of the folding box group. Vice-President E. R. Hankins, of the paperboard group. Vice-President J. J. Brossard, of the container group.

General Manager's Report

General Manager Browder submitted a concise report of the principal activities of the Association since the March meeting. Specific mention was made of the following items:

1. General Association Activities. 2. Activities of the Sales Promotion Representatives. 3. Finances. 4. Traffic and Classification Matters. 5. Relations with the Department of Commerce, etc. 6. Laboratory and Research. 7. Publicity.

The general manager's report was well received and a copy has been furnished to each member with the minutes of the meeting.

Sales Promotion Committee's Report

Chairman J. H. Macleod reported in detail for the sales promotion committee. His constructive presentation was well received and members were unanimous in expressing their approval of the substantial progress that has been made in increasing the use of paperboard, fibre containers and folding boxes. The committee's detailed report, consisting of 126 printed pages, has been mailed to all member companies.

Economist's Report

Dr. E. O. Merchant, the Association's Economist, reported upon "General Business Conditions and the Paperboard Industries." A copy of the report has been furnished to all members.

Remarks of President Alford Prior to Adjournment

Just before the meeting adjourned, President Alford made the following statements:

"The meeting today marks the half year of another Association year. The year started out well from the standpoint of business prospects, but recently conditions have not been so favorable. In other words, present conditions are unsatisfactory. But surely, the carrying on of this Association is absolutely essential. Personally, I do not believe that the Association is dragging the industry down, but I do feel that some of the manufacturers are dragging the association down and themselves along with it.

"We realize that outside forces are possibly partly to blame, particularly some outside forces which have come into the field during the last two or three years.

"We are all prone to rush ahead and run up production and sales even though we must realize the demand is lagging. I cannot help remark on the lack of wisdom incident to a policy of that kind.

"When machines were first developed, there was a feeling that machinery would displace labor; that is to say, machines were first looked upon by the workers as being a factor which would replace them, but under the present circumstances, it would appear that the so-called owners of the machines are paying the price for letting the product, or rather production, be our master, rather than following a course of proper merchandising methods.

"In such times as the present, the Association should be our rallying ground or tying post. We should hitch to it and hold on. It is most important that contact between the members of this industry, which is a highly competitive one, be properly maintained.

"Unfortunately, your chairman has no panacea to offer you, but I do say to you try to think once more that you are in business, not necessarily to operate your plant to its fullest capacity, but to make a profit, and I say, slow up a bit and operate intelligently.

"Your association officers, committees and members of the staff will work, I am sure, harder than ever before."

Folding Box Group Meeting

Vice-President Hinkle opened the meeting by referring to the situation at present confronting the folding box industry. He stressed the point that unselfish and full cooperation by every member of the group, whether large or small, is absolutely essential to correct present conditions, which were described as being far from ideal. The members present at the meeting decided that between now and the time of the July meeting, a strenuous effort will be put forth to interest all members of the Group in the work that is being carried on through the Association in behalf of the industry, and particular effort is to be made to insure the presence of every member of the group at the next meeting.

Extending the Use of Folding Boxes

An interesting and constructive report was submitted by the sales promotion committee showing progress made in extending the use of folding boxes. Satsfactory folding boxes have been designed by the Sales Promotion Department for the packaging of certain fruits, which packages have been well received by growers, dealers and retailers. Sample folding boxes were on exhibit at the meeting. Several prominent fruit packers will pack a part of their crop for this season in the type of box recommended and certain chain store organizations and retail stores have arranged to purchase fruits in folding box "consumer" packages.

Of special interest was the report submitted showing the development of folding boxes suitable for the packaging of a product now generally packaged in other types of containers. In the ex-

periments which have been conducted, 13 different types of folding box and certain other containers were packed with the product in question, after which tests were made at given periods to determine whether the folding boxes had protected and preserved the contents and had retained the quality of product as well as, or better than, the other containers. The results showed that at least three types of folding box are as good as one of the other types of containers included in the tests and are superior to certain other types of containers, which are now more or less in general use for the packaging of the product in question. Members of the Association are being fully advised as to the tests and full data with respect thereto is included in the Sales Promotion Committee's report.

Statistical-Accounting Subjects

Statistical-Accounting subjects were reported upon in detail by Grafton Whiting, the Association's Statistician. Among the subjects covered were the following:

1. The Profit and Loss Questionnaire, in connection with which a summary is to be issued to cooperating members showing operations in 1927 from the standpoint of profit and loss.
2. Census of the Folding Box Industry.
3. The Depreciation Survey, in connection with which the meeting approved a schedule of rates, which are to be transmitted to the U. S. Treasury Department, which Department will quite likely approve same as the standard rates for the industry for use in connection with tax returns.

Paperboard Group Meeting

The paper board group meeting, presided over by Vice-President E. R. Hankins, was well attended. The Vice-President submitted a report in which he reviewed briefly operations in the Paperboard industry. In it he mentioned an effort now being put forth to secure the membership of certain paper board manufacturers, not now enrolled in the membership.

Waste Conservation and Stream Improvement

C. M. Baker, formerly Sanitary Engineer for the state of Wisconsin, who is now acting in an engineering capacity for the American Paper & Pulp Association, was present at the meeting. He made an interesting talk on the subject of "Waste Conservation and Stream Improvement." Mr. Baker stressed the view that stream pollution can be corrected to the financial advantage of the Paper board manufacturer and he reviewed briefly the progress that is being made by some of the members of the American Paper & Pulp Association. In connection with the subject, he said:

"In checking over the returns from 50 mills, I consider that only 7 of those mills have what I might call efficient utilization of their waste. In the paper board mills, as well as in the other mills, it is not only a question of saving in fibre waste, but also other savings. The subject of conserving the water supply is a most important item. The report shows that one company is saving $600.00 per month in its water bill."

Vice-President Hankins introduced L. M. Booth, president, Booth Chemical Company, Elizabeth, N. J., which company has been working on the subject of "Waste Utilization for some of the Straw board Manufacturers.

The following questions from Mr. Booth's remarks are of particular interest:

"The work I have been doing for the straw board mills was initiated with a view to ascertaining whether or not some of the matter which was being disposed of, could be utilized. To date I have worked at three mills. I have found that much of the supposedly refuse material can be recovered and made into paper or board; that such board is highly satisfactory for corrugating and in one mill we have shown that a better grade of .009 straw can be produced through our method.

"The actual saving amounts to about 1,000 lbs. of straw per ton of paper. The recovered stock is handled hot, so that less fuel is required in the subsequent operations. The stock coming on the machine is hotter; more water is taken out by the process and as a consequence there is less moisture to be taken out on the driers."

It was voted to be the sense of the meeting that Vice-President Hankins appoint a committee to consider this subject for the paper board industry, the committee to be requested to submit its recommendation to the members of the group as soon as possible.

Statistical-Accounting Subjects

In introducing the report on Statistical-Accounting subjects, Chairman Hugh Strange requested that every member of the Group send in his statistical figures promptly and regularly so that the summaries will be complete and truly representative of the situation in the industry. At the direction of Chairman Strange, Grafton Whiting reported in detail for the Committee, specific mention being made of the following items:

1. The Profit and Loss Questionnaire of 1927 Operations. 2. The Census of the Paperboard Industry. 3. The Depreciation Survey. 4. Department of Commerce Statistics on Imported Strawboard. 5. Cost Work.

Eliminating Inferior Container Boards

The above subject, which is one of vital interest to the paper board mills, the container manufacturers, and the users of fibre boxes, was discussed at length. Members of the group heartily endorsed a plan of procedure, recommended by the executive committee, whereby the association will employ a corps of inspectors to check up on corrugated or solid fibre boxes in general use, to see that the boxes fully meet the requirements of the railroads and express companies in the matter of strength and thickness of box board.

Container Group Meeting

The container group meeting, presided over by Vice-President J. J. Brossard, was well attended.

General Manager's Report

The general manager submitted a comprehensive report, mentioning particularly, the changes recently made in the freight packing requirements which are of considerable interest to the Container manufacturers and the users of fibre boxes. This report was favorably commented upon and it was pointed out that a number of packages recently authorized by the Consolidated Freight Classification make available new fields for the use of corrugated and solid fibre boxes; that is, fields in which the use of such containers was prohibited by the carriers' heretofore existing regulations.

Vice-President Brossard urged that member companies inform their sales forces as to those changes in order that each member company may secure its share of the new business now available to the Fibre Container industry as a result of those changes.

Statistical-Accounting Subjects

Samuel Samuels, a member of the Statistical-Accounting Committee, reported for the Committee, particular mention being made of the following subjects:

1. Statistical reporting by members. 2. Census for 1927. 3. Profit and Loss Questionnaire, showing operations for 1927.

Boxes for Shipment of Canned Foods

The meeting directed the sales promotion committee to make an investigation of corrugated and solid fibre boxes used for shipment of Canned Foods. It is quite likely that extensive drum tests will be made, as well as shipping tests, to develop the types of corrugated and solid fibre boxes which are most satisfactory for the shipment of canned goods.

Next Meeting, Niagara Falls, Ont., July 18-19

Announcement was made that the next meeting of the Association will be held at the Clifton Hotel, Niagara Falls, Ontario, July 18-19, 1928. President Alford urged all members to make their plans to be in attendance at the summer meeting.

Evolution In the Paper Business*

By S. L. Willson, Pres. American Writing Paper Co.

The more I read and learn of the west coast business situation, the greater respect I have for the acumen and foresight shown, and the more eager I become to be a listener rather than a speaker. As it is, I feel more like an historian than a pioneer, but possibly a composite picture of the past, present, and future may be of interest and give you a new perspective of the evolution now going on in the paper business.

In reviewing the industry, in order to give a word picture of conditions, I want to divide the subject into three parts—Manufacturing, Distributing, and Future Possibilities. In manufacturing—we have not seen many changes in the processes. We know of the hand made method, the cylinder method, and the straight Fourdrinier method. These three basic methods are in use today, with the Harper Fourdrinier and the Yankee machines closely related to the straight Fourdrinier type. The principal changes in manufacturing have been in the addition of control and speed equipment and the wider machines for volume production.

During the past few years—or to be more exact—since 1921—every up-to-date manufacturer has been devising means of reducing costs, knowing full well that his future profits would come largely from economies in production and the elimination of waste and not from increase in prices, as the natural trend of prices would be lower rather than higher. Manufacturers are now producing greater tonnage per man than was produced five years ago. The average in the writing paper branch of the industry is approximately 300 pounds per man per day. From this it runs up to around 1200 pounds per man per day according to the grade of paper made. If no increase has been effected the manufacturer is to be pitied, as even with the savings thus effected most of them are having difficulty in obtaining a reasonable return on their investments.

Mystery Gradually Disappearing

The mystery which surrounded the manufacture of paper in the past is gradually disappearing. Manufacturers now willingly exchange ideas regarding their problems and benefit by each other's experiences. The research studies in the processing of raw materials—the various controls and improvements in machinery are public property through trade journals so that one manufacturer has very little operation advantage over another making similar grades of paper. I do not wish to detract from the value of the earlier school of papermakers, who through long experience in the treatment of certain stocks and the blending of them, may, with the same materials and equipment, be able to produce better results than some others, but the "bag of tricks" which we often hear spoken of in business is disappearing as we are governed more by scientific methods than ever before.

In the old days the manufacturer made paper to suit his own ideas as to grades and sizes. Today, unless the manufacturer can supply the papers his customers want he has but little chance of success. Manufacturers are too near to their problem to accurately determine the marketability of their self created products. Their finished product to them seems to be the acme of perfection—but the rub comes when they try to sell it—when they discover it is not what the consuming public wants.

With the advancement in the art of printing and in scientific conversion of paper, it has become necessary to build papers to fit the new technical requirements. This has been possible only through research, standardization and scientific control.

Most manufacturers during the past five years have given a great deal of thought and attention to economies in production and have secured some relief, but I believe one cause for the present unsatisfactory condition of the merchant is that he has not given enough thought and study to the problem of economies in distribution.

Distribution

This brings me to the subject of distribution.

Let us look back a few years. In the old days the dealer in paper went to a mill and bought up such stock as the manufacturer had in his warehouse—odds and ends—and he became a jobber. Later, when paper was made on specification of customers, standardization began, regular sizes and weights were established, which permitted the once jobber to develop into a wholesaler and carry standard stocks. The wholesaler of twenty-five years ago was the man who bought in very large quantities and resold—not only to the large printers direct—but to the small merchants as well, who in turn looked after the smaller trade within his limited territory. As the paper requirements became more technical and the volume increased, it became desirable for the large consumer to have direct contact with the mill, and in this manner direct selling began. While this was originally confined to the large consumer of paper, it gradually spread, and the smaller merchant was then solicited by the mills direct and the wholesaler was practically eliminated; in fact, there is no one in the Industry today that could be properly classified as a wholesaler in paper, so it might be said that one middleman has already been eliminated.

The trend of direct selling has continued to grow. At least 90 per cent of Board tonnage, 85 per cent of newsprint, 60 per cent of book, 50 per cent of wrapping, 30 per cent of bonds and writings, 20 per cent of cover, and 50 per cent of miscellaneous grades are sold direct, while the balance is sold through the merchant or broker. Formerly all of this tonnage was passed through the wholesaler and jobber. Expressing this in another way, an average of 70 per cent of the total tonnage is sold direct, 25 per cent of it through the regular merchant or distributor, and approximately 5 per cent through the broker.

The manufacturer is told by the merchant that the cost of business has so greatly increased that some remedy must be found to give relief. The manufacturer and the merchant are in harmony on this statement of condition. They both need relief. But there are differences of opinion as to the remedy—not only among the merchants and the manufacturers as separate groups but also between the merchants and the manufacturers, collectively. Each of us probably have some sugar coated remedy in mind, but to another it might be hard to take. Being a manufacturer I suppose I should be discreet in what I say before a group of merchants, but whether right or wrong in my analysis, I am going to speak out as I want to start some thinking along the same lines with the hope that something may evolve that will help the situation.

Some fifteen years ago I became very much impressed with the changes in merchandising that were taking place, particularly as to the direct selling trend, and from time to time since then I have given the matter much thought. During my experience as a merchant I was probably "too close to the trees to see the forest", or too accustomed to operate upon established merchant practices to properly analyse the evolution in Industry—but my later experience in manufacturing during the past five years, coupled with my experience as a merchant and my present outside viewpoint of their problems, has enabled me to form some definite opinions.

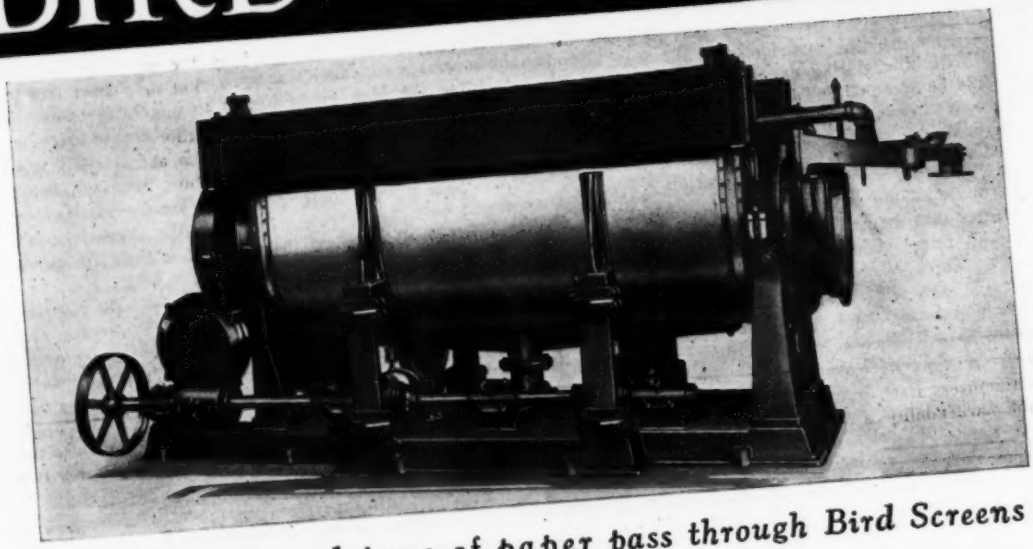
Two Chief Problems to Study

I am first going to suggest to the merchants as a group that I believe that have the opportunity within their own organizations to effect economies that will produce the additional revenue they claim is necessary for their existence. There are two chief problems to study: First—Readjustment of Stocks. Second—Character of Business. There are very few merchants in the coun-

* Address before the annual meeting of the Pacific Coast Paper Trade Association, Del Monte, Cal.

Ask Any Paper Maker which screen will handle his stock best. We're willing to gamble that he'll tell you to use

BIRD SCREENS



Twenty odd thousand tons of paper pass through Bird Screens daily

BIRD MACHINE COMPANY
South Walpole, Massachusetts

2021

try who have well balanced stocks. I means by this that nearly every merchant carries altogether too many lines. It is not only expensive from a warehousing standpoint, but it is even more expensive to him in the way of lost sales efforts. Many merchants today are furnishing service rather than selling paper. They carry competitive lines in order that they may be able to supply a specified brand of paper, when, with the proper sales effort, any other comparable brand would be as acceptable. To illustrate: Upon examining the catalogues of thirty merchants, the following startling condition was found in relation to rag content bond papers—

On papers selling at 50 cents and over

5 merchants each carried 2 competing lines
6 merchants each carried 3 competing lines
3 merchants each carried 4 competing lines

On papers selling between 40 and 50 cents

5 merchants each carried 2 competing lines
2 merchants each carried 3 competing lines
2 merchants each carried 4 competing lines
2 merchants each carried 6 competing lines
1 merchant carried 5 competing lines

On papers selling between 35 and 40 cents

3 merchants each carried 2 competing lines
1 merchant carried 3 competing lines

On paper selling between 30 and 35 cents

7 merchants each carried 2 competing lines
1 merchant carried 4 competing lines

On papers selling between 25 and 30 cents

8 merchants each carried 2 competing lines
2 merchants each carried 3 competing lines
2 merchants each carried 4 competing lines
1 merchant carried 6 competing lines

On papers selling between 20 and 25 cents

16 merchants each carried 2 competing lines
5 merchants each carried 3 competing lines
4 merchants each carried 4 competing lines
1 merchant carried 5 competing lines

If each of these merchants cut out the competing lines in his stock—these thirty merchants would carry only 77 lines—divided among the six price groups, instead of the 212 lines which are now carried. With this glaring example of 30 merchants—just think what could be accomplished in the way of economies in the entire industry if standardization were applied. This principle applies to the manufacturer, as well.

The Results of Standardization

As an illustration of the results of standardization—I know of one manufacturer that formerly made over one hundred lines of bond paper, with prices about one-eighth of a cent between the alleged grades. Through standardization these were reduced to nine grades. Through sales efforts, it is now selling more bond paper tonnage and better bond paper than at the time when it was attempting to sell the one hundred lines, and it still has a paper for every commercial purpose.

I have had occasion from time to time to offer standardization advice to young merchants starting in business, and they have found that concentrated sales effort on fewer non-competitive grades enabled them to secure more satisfactory profits than were secured by some of the older established houses carrying a great number of competitive lines with the primary idea of giving service. The amount of capital invested was very much smaller, the amount of space required for warehousing was much reduced, the turnover on the stock greatly increased, and incidentally, salesmanship was developed.

The question of inventory is seldom given enough consideration—this applies both to manufacturer and merchant—not only the quantity, but the character of it should be carefully analysed. Every item kept over a year adds 10% of the cost of that item on account of interest and warehousing charges. By keeping control on turnover it will help you to push the decimal in your dollars and cents net profit statement one point to the right.

Character of Business Solicited

The second field for improvement is the character of business solicited. A great weakness in merchandising as I see it, is the attempt to do a great volume of business. Having operated so long on the idea of building up sales, some merchants have lost their balance on the idea of building up profits. They are doing volume business at the expense of profits. This statement also applies to some manufacturers. I would suggest the slogan "Better Business—instead of Bigger Business." Merchants who confine themselves strictly to the fewer lines and better grades; who take little or no interest in shipments from the mill of lines not stocked by them, are eminently successful and are not asking for additional mark-ups on their papers or any relief from the mills with which they do business.

From what I have heard in the past two years, there seems to be an effort on the part of some merchants to go after that class of non-stock business which is today handled by the broker on a margin of from 2 to 7½ per cent. Any merchant is fooling himself who thinks he is making money on this class of business while maintaining an overhead average cost of doing business of from 15 to 20 per cent. All of the direct business taken on such a margin of profit is done at the expense of the profits made on stock business, which by itself is profitable and entirely satisfactory. You can't eliminate the broker by this method, if that is the objective. If you compete with the broker you must operate with his brokerage method—as a detached branch of your stock business.

The merchant today is asking for relief on all proprietary lines. The manufacturer shows a disposition to be helpful, but I think it would be unnecessary to appeal to the manufacturer for relief if the possible economies is distribution and readjustment of stocks were put into effect by the merchant. On the lower grades and for small deliveries where, according to statistics, some remedy is needed, I believe the manufacturers will be sympathetic and cooperate in extending relief, but I believe the remedy should be applied to the sore—where the remedy is needed, rather than by trying to recoupe losses resulting from the attempt to handle brokerage tonnage on a warehouse stock operating basis by penalizing the high grade papers to a greater extent than they are now penalized under the present percentage mark-up.

Lack of Cooperation in Association Work

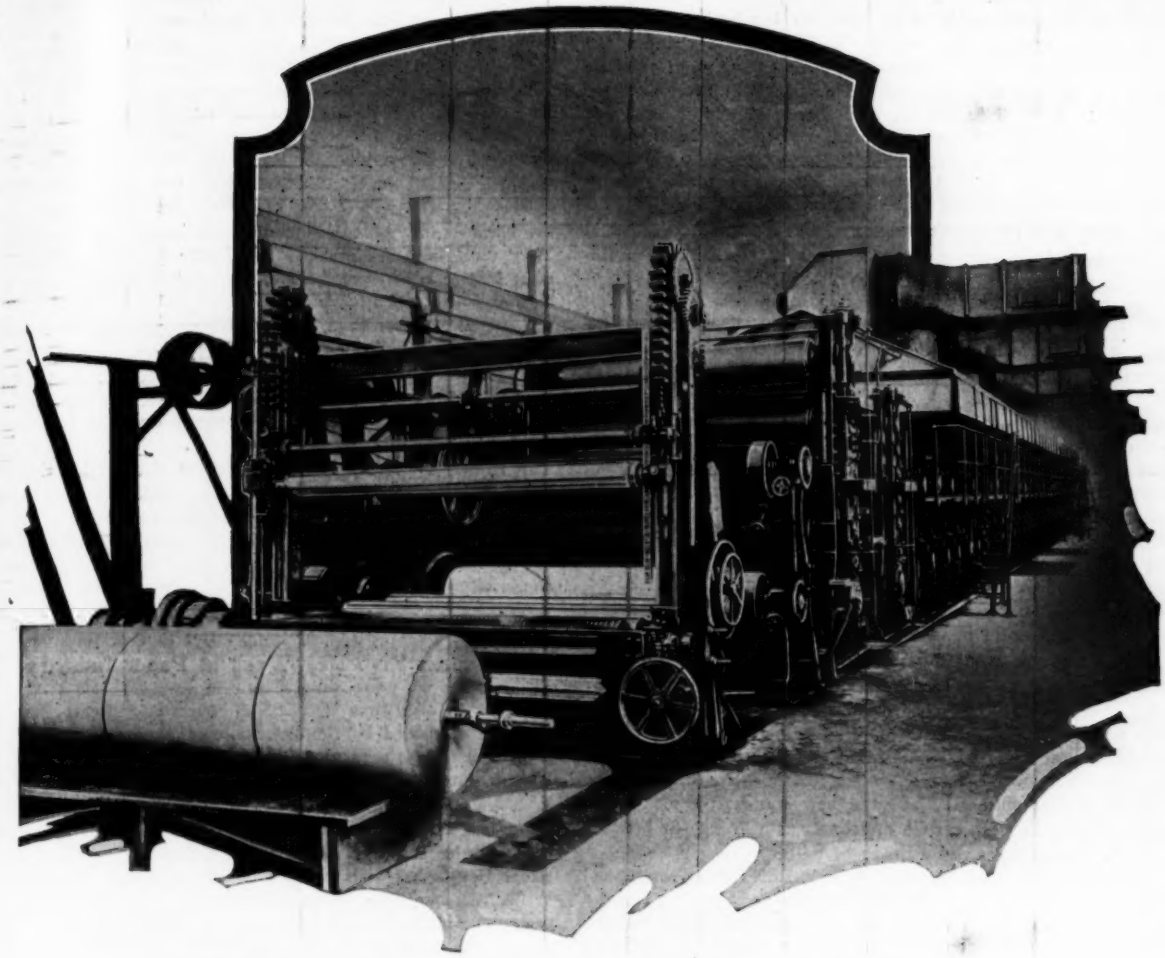
Another friendly criticism is that in association work there seems to be a lack of cooperation. During the past two years we have had concrete evidence. I refer to the discussions of the problems relating to additional charges for less than 500 sheets or less than 1,000 sheets and to carton packing.

While I do not express any opinion for the manufacturers, I do express a personal opinion that in conferences between manufacturers and merchants there should be definite authority delegated to small committees, and that the acts of such committees should be adopted and put into operation provided the majority of the members of the association approve, and not permit a minority to control the situation as has happened, or to be influenced by those not belonging to the association. One hundred per cent endorsement of any plan is seldom secured. If we wait for it, we shall never settle our problems.

I realize that in different parts of the country different conditions, exist, and therefore different viewpoints arise, but even on unimportant questions where you might expect unanimous action, there seems to be a great diversity of opinion, mostly based on some one's personal ideas as to what effect a proposed recommendation will have upon his individual business rather than considering it upon the basis of what is good for the Industry as a whole or the future benefits.

1,000 Sheet Carton

In my opinion the merchants are overlooking an opportunity for economies in distribution by their failure to adopt the "one man"



Eliminate Operating Difficulties

Progressive design is of major importance in the paper machine of today, for profits are now largely dependent on uninterrupted, trouble-free performance. One sound principle of mechanics, being practiced more today than ever before, is the elimination of parts requiring constant attention or delicate adjustment.

The illustration shows a new six cylinder Keystone Board Machine which trims 112 inches. This high speed cylinder machine replaced an old 80 inch machine.

Base your own judgment on facts. An investigation of Downingtown Machines (Fourdrinier and Cylinder) will convince you that only utter neglect can prematurely affect their trustworthiness.

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DOWNINGTOWN Manufacturing Company Downingtown, Pa., U. S. A.

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or 1,000 sheet carton. In a survey made we found a majority of merchants were favorable to its adoption but hesitate to adopt it because everybody else won't. Many proposed changes are called radical, but when analysed we usually find such opinions based on the fact that the proposed changes will necessitate the expenditure of a little money, or because the old method has served the purpose for many years and ought not to be disturbed, or that someone has an ulterior motive and is trying to put something over. What we need in business today is broad, cooperative ideas, ideas which recognize the rights of others as well as our own rights, and the future benefits to the industry. We should be willing to make some present sacrifices for the benefits to follow. In other words, we should look ahead.

The merchants today are seeking to inaugurate methods that will produce greater profits, and I feel confident in expressing the opinion that the adoption of the "one man" carton will not only save them money in handling in and out of their warehouses, but they will find the package more acceptable to the people they deal with; that stocks will be kept in very much better shape; that it will require a great deal less warehousing space, and at the same time you do not break down your price structure and bring about an "in-between price" which will produce exactly opposite results to those which the merchant is now seeking, namely—more profit. A special carton price on the "two men" carton of 120 to 150 pounds will surely break down your present price on the quantity of goods composing that carton, which cannot occur with the "one man" carton. This suggested method shows no saving to the manufacturer; in fact it will probably add to his costs.

This brings me to the third phase of my talk—and one of the most important—Future Possibilities.

I feel confident by experience to state that the merchants have been unconsciously creating a condition in merchandising that will increase the direct selling trend to an extent that may prompt the mills to seriously consider some change in their future selling policies or that will bring about a new cooperative method of merchandising between certain merchants as a group—or between a group of merchants and a group of mills.

We see in other lines of business chain stores being established throughout the country carrying standardized stocks, handled under one sales policy, purchases made in large quantities and with territories well mapped out to avoid overlapping sales efforts, and it is reasonable to assume that some plant of this kind may develop in the paper business. I have no definite plan or remedy to offer, but I can look into the future and see changes there apt to take place along these lines.

The trend of the times is combinations. The public today does not look upon combinations as it did in the past. Thirty years ago most combinations were born in iniquity, there was an ulterior motive back of them—it was for the purpose of throttling competition and to secure monopolies. Today, combinations are formed with the idea of economies in production and distribution which bring about lower manufacturing costs and lower selling prices. We see in some industries the middle man being eliminated. We see the small units having greater difficulty in maintaining their existence and any attempt to bring about unjustifiable increased costs of commodities to the consumer will invite and hasten combinations.

A glance at the Federal Tax Returns indicate that the profits in business come almost altogether from the larger corporations. Statistics show that 52 per cent of the total profits earned are made by one-fourth of one per cent of all the corporations. One-twentieth of one per cent or 215 out of 430,000 corporations earned 40 per cent. of the total profits. Statistics also show that these larger corporations are successful, not because they charge more for their goods or because they have a monopoly, but because through those combinations lower costs have been brought about both in production and distribution through scientific management and that their products are sold at reasonable prices based on capital investment, frequency of turnover, and degree of risk.

Just a word about associations. These began in the time of Adam when the first association was formed with Eve. A little later business started. They began to exchange one commodity for another and to exchange ideas—Cooperation was the basis of these activities—and associations developed. Since then associations have grown in number and size—the larger they get the more unwieldy they become. I am a strong believer in associations if they are properly conducted. To be properly conducted they must have objectives that are practical, sound and business-like. They must recognize the ever changing times, they must operate upon the basis of the benefits for majority instead of for the few. They must have leadership. The leader must be respected, he must inspire confidence, he must be clothed with authority, and his judgement relied upon.

There have never been, during my experience in the Industry, such unsettled conditions as now exist; there has never been a time when so many questions needed to be solved, nor has there ever been a time when leadership was needed as much as it is needed today, nor a time when cooperation was more necessary than at present.

In closing I want to again express my pleasure in being with you, and to state that I shall return East with many pleasant and kind thoughts of my old friends and of the new ones made on this trip, and I extend to you all a very cordial invitation to visit our company in Holyoke, so that we may have the pleasure of returning some of the wonderful hospitality you have extended to your eastern guests on this occasion.

Discuss Five Day Week in Paper Industry

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., June 11, 1928.—A concerted move, the first in a campaign launched by the International Brotherhood of Papermakers aiming at a five day week in the news print mills of the United States and Canada, was taken last week at a conference in Washington, D. C., between representatives of the six labor organizations identified with the paper industry and representatives of the manufacturers. The conference was held at the Hotel Harrington and James J. Davis, Secretary of Labor, and William Greene, head of the American Federation of Labor, were present. The conference was called by William R. Smith, president of the Brotherhood, who presided at the meeting. The Pulp, Sulphite and Paper Mill Workers' Union was represented by John P. Burke, president, and George J. Schneider and Frank P. Barry, vice presidents of the Brotherhood, were also in attendance.

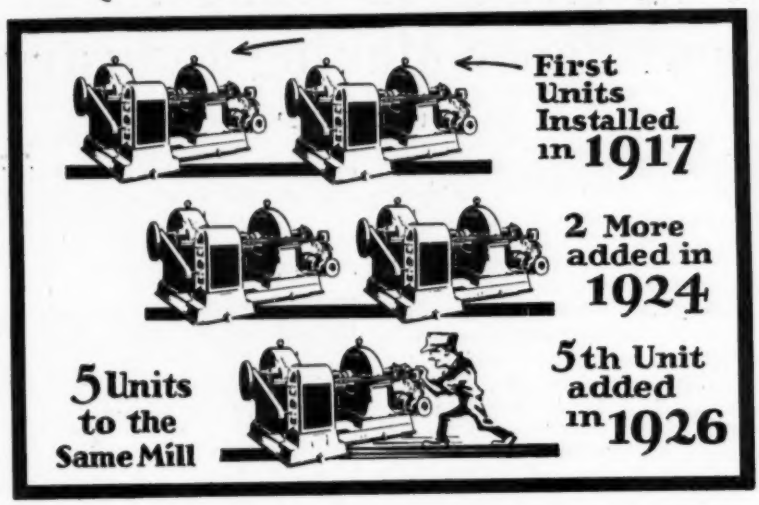
Every news print paper manufacturer in the United States and Canada was invited to be present at the conference and representatives of many of the largest mills were on hand.

According to President Smith, of the Brotherhood, the Washington conference was the most important ever held by the papermaking unions. At the last national convention of the Brotherhood in this city several months ago the five day week was endorsed and officials of the organization were instructed to use their best efforts to bring it about. The arrangements for the Washington conference were made in complete secrecy and the fact that the conference was scheduled became known only as President Smith left for Washington.

Mr. Smith said that the unions were asking for a five day week because of the tremendous over development in the news print industry caused by the large number of big, fast and modern machines that have recently come into production with still others starting operations during the year. He said that this will increase news print production by 1,500 tons daily over 1927 when the mills as a whole operated at about 84 per cent of capacity. He declared this over-development has already caused considerable unemployment with more in prospect through added new tonnage. Many of the mills, he stated, are now running on short time basis with only a few mills on full time. As a result of this, he said, there is an over-production of news print on the market and some of the large publications are already seeking reductions in price.

The TERRY Paper Machine Drive

[Variable or Constant Speed]



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Electrical Metering Instruments in the Pulp and Paper Making Industry

By O. C. Cordes [1]

Electrical metering instruments are extensively used in connection with the various processes entailed in the manufacture of paper and play an important role in showing the power requirements of the various machines at all times. In fact, by means of these instruments, indications of impending trouble can often be determined at a glance, before any serious trouble has developed which is especially valuable with apparatus where the working parts are frequently enclosed and inspection is difficult. Also, in the cases of those processes requiring the grinding, brushing or similar treatment of the pulp, the working parts of the machines can be conveniently adjusted to proper proximity and efficient working conditions with the aid of the load indicating ammeter. In this manner, a more uniform grade of pulp can be produced and more effective operation maintained, due consideration being given to variations in

FIG. 1

Squirrel cage induction motors driving vacuum pumps showing ammeters mounted on the auto-starters.

stock, temperature and other factors influencing the power requirements.

Since virtually all machinery used in the manufacture of paper is in 24-hour service, usually six days a week, it is particularly important to maintain a constant watch for possible conditions of overload which might precipitate a costly shut down. As a protection, it is recommended that every motor be provided with an ammeter, mounted close to or on the starting equipment, by which an accurate indication of the motor load may be noted at any instant. In the case of Jordans and beaters, the plug and roll can be adjusted to position most aptly by observing the ammeter, *i.e.*, in bringing the plug or roll into proximity with the stationary member, the correct position for

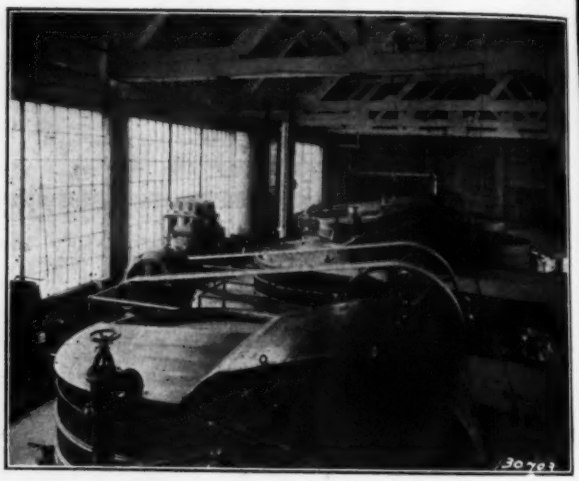


FIG. 2

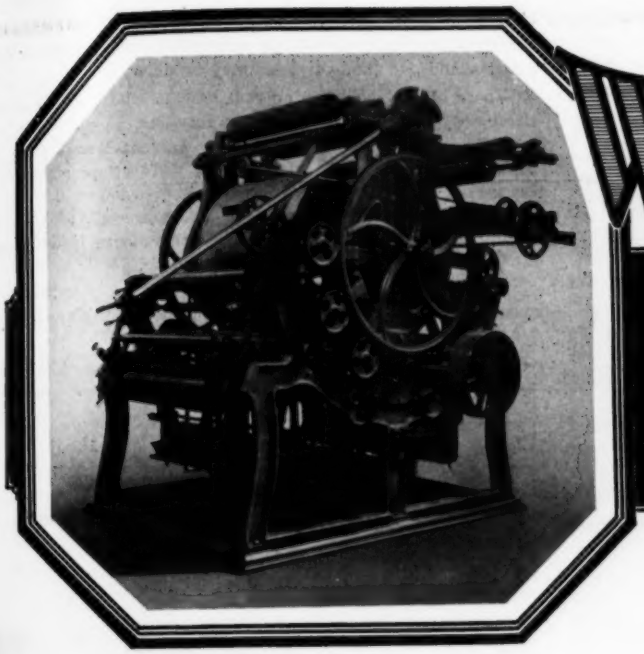
Wound rotor induction motors driving beaters and showing ammeters mounted on the control panel.

maximum capacity and efficient handling of the stock can best be determined by observing the ammeter.

Due to the continuity of operation in the paper mill and the fact that few parts of the functioning equipment can be shut down without interfering with the operation of the entire mill, it is impractical and hardly safe to attempt to measure the motor load by cutting instruments into the line during operating conditions. This fact is readily appreciated, since a single misstep in making the necessary connections may cause the shutting down of part of the mill, or even the entire mill, and if the voltage is high the making of these connections is quite risky. Of course, test instruments may be connected into the motor circuit while the mill is shut down over the week end, but such procedure would tie up the instruments until the next shut down period.

An ammeter permanently installed in the motor circuit will obviate any such difficulty, however, and will indicate the load on the motor at all times, so giving warning of impending shut downs which might result from overload conditions. In general, furthermore, the ammeter is sufficient and the only in-

[1] Paper Mill Section, General Engineering Department, Westinghouse Electric and Manufacturing Company.



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strument really necessary, for the ampere reading will always indicate the load on the motor. From the motor performance, the power factor and horsepower output of each motor can be determined. On large motors, an indicating wattmeter will be found desirable, for it will help materially in determining the power factor and power input.

Instruments for Synchronous Motors

In most paper mills, the large item of connected power is induction motor load, the power factor of which is nearly always low. To improve this condition, which necessitates the installation of excess generating capacity and results in excessive copper losses, all of which entails additional interest and depreciation charges, as well as operating costs, various steps have been taken during recent years. The favorite and most practical of these is the use of synchronous motors for driving such machines as grinders, Jordans and direct current generators. Each of these synchronous motors should be supplied with an alternating current ammeter, with the proper current transformer connected into the armature circuit, and a direct current ammeter for measuring the field excitation.

In addition to these essential instruments, a power factor meter and an indicating wattmeter are to be recommended, on account of their convenience to the plant engineer or electrician. At a glance, they indicate the power factor and power input conditions. Also, a red mark should advisably be placed on all ammeter scales to show the maximum safe continuous load for the motor.

For driving the paper machine with a single direct current motor belted or coupled to the main line shaft, a synchronous motor-generator set, with direct connected exciter, is usually employed to furnish the power for the motor driving the paper machine. In such case, the synchronous motor should always be provided with an alternating current ammeter, with the correct current transformer connected into the armature circuit, and a direct current ammeter for measuring the field excitation.

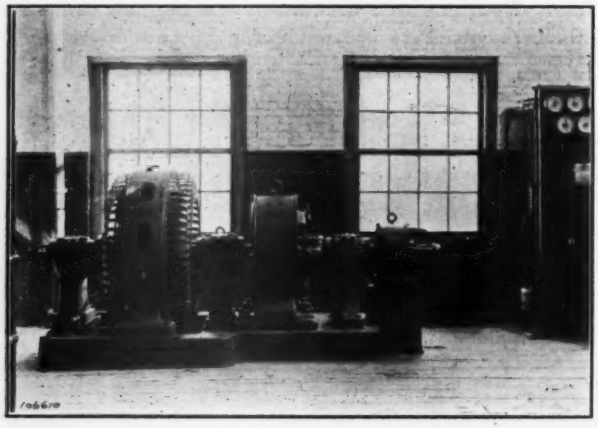

FIG. 3

Synchronous motor-generator set employed for single motor paper machine drive showing instruments mounted on the synchronous motor panel.

A power factor meter is also recommended for convenience in determining the power factor at which the machine is operating. The direct current motor, generator and exciter should be provided with a direct current ammeter for measuring the current delivered by the generator to the motor, a direct current ammeter for measuring the exciter output and a direct current voltmeter for measuring the generator and exciter voltages. A single voltmeter, connected through a two-way switch by which it may be thrown at will across either the generator or the exciter circuit, will suffice. From the readings, as obtained by these various instruments, the exact power requirements for any paper speed and kind of paper may be determined.

Where individual direct current motors are employed to drive the various sections of the paper machine, an alternating current ammeter, with the proper current transformer for measuring the armature currents, and a direct current ammeter, for measuring the excitation current, should be provided for the synchronous motor of the motor-generator set. A power factor meter is also recommended for convenience in determining the power factor at which the machine is operating. The synchronous motor-generator for this case usually consists of a synchronous motor and generator only. There should be provided for the generator, a direct current ammeter to measure the total current delivered by the generator to the sectional motors and master rotary contractor and a voltmeter. The separate exciter set, which may consist of two direct current generators and an alternating current motor, will require a direct current ammeter for each generator and an alternating current ammeter, with the correct current transformer, for the motor. The generator voltmeter, through the agency of receptacles in various places on the control board, may be used to measure the voltage generated by the several units, as well as the voltage drop across the regulating resistance in the fields of the section motors. Each of the section motors should be provided, however, with a direct current ammeter, the indication of which together with the line voltage determine the power input to the section motor.

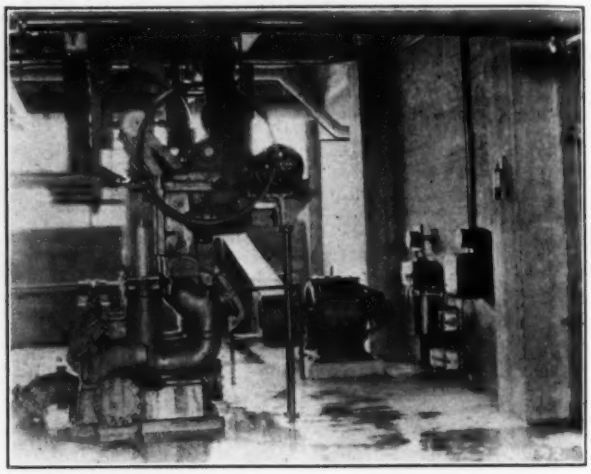

FIG. 4

Wound rotor induction motor driving constant speed shaft of paper machine and squirrel cage motor driving pump showing ammeters mounted on the control panels for both motors.

Where the winder is driven by an adjustable speed, wound rotor, motor through a jack shaft and slip belt, the load on the motor depends upon how tightly the operator sets up the hand friction on the paper supply roll, the speed ratio of the winding drum and how tightly the idler is set against the slip belt. These three variables, combined with the fourth variable known as the human element, can together impose a very considerable load on the motor under certain conditions. As a safeguard, consequently, it is highly desirable to have an alternating current ammeter, with the proper current transformer connected into the motor circuit, located in a position convenient for observation by the operator. A red mark can be placed on the instrument scale to apprise the operator when the load on the motor has reached the safe limit.

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BASTROP, Louisiana: "Gator Hide Kraft," four big machines, and Dilts New Type beating engines.

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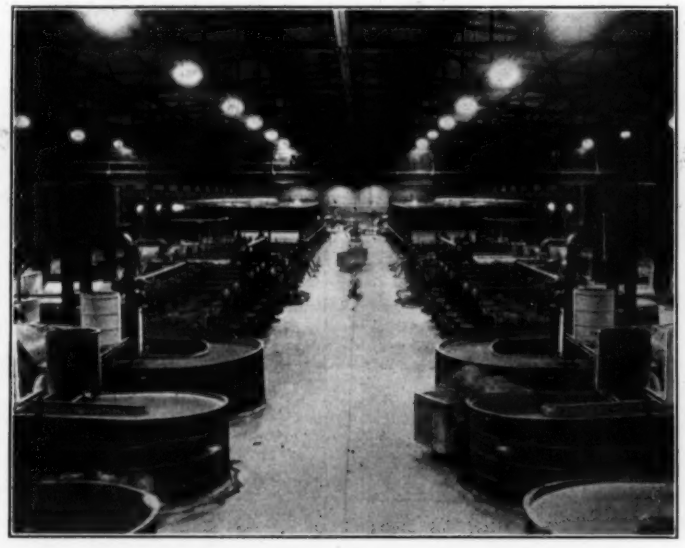

Dilts New Type Beaters in Camden mill ←

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In the more modern winder drive, however, both a direct current motor coupled directly to the winder intake shaft or to one of the winder drums and an induction motor-generator set are employed. Both the direct current motor and the generator are separately excited and the speed of the motor is varied by changing the armature voltage of the generator. In this manner, a large speed range, from practically zero to full speed, is obtained. The method also eliminates the slip belt which is one of the most objectionable features of the older variety of winder drive.

With the modern set-up, a direct current ammeter should be provided between the generator and motor which, together with a direct current voltmeter for measuring the generator armature voltage, will give the power input to the motor. The ammeter reading will also be a function of the torque required by the winder and will show how it varies for different grades of paper and operators. The voltmeter reading will be a function of the winder speed. An alternating current ammeter, with the proper current transformer connected into the armature circuit of the induction motor, will indicate the load on the motor-generator set. Here, as before, a red safety mark can very advisedly be placed upon the instrument scales.

Pulp grinder regulators for governing the load on the grinder motors, so as to keep it as nearly constant as possible under all normal working conditions, are one of the most recent developments, and at the same time most profitable, in the paper industry. A graphic ammeter, in fact, is highly desirable with each motor to show the value and uniformity of the load at all times and to provide a permanent record.

Where certain types of magazine grinders are employed, instruments can very well be employed to indicate and record the rate of grinding. These instruments will provide dependable means for determining the rate of grinding at any instant and when of the graphic type provide a continuous record of the grinding rate. By means of the combined indications of power input and rate of grinding the "freeness" of the stock can be determined with a very fair degree of accuracy without the conventional "freeness" tests.

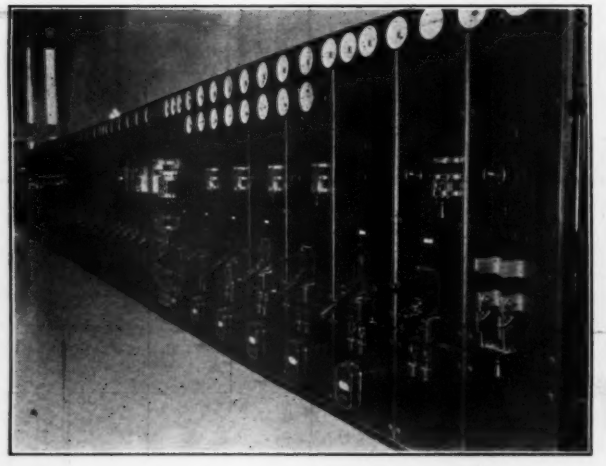


FIG. 5

Switchboard in paper mill power plant showing arrangement of instruments on generator and feeder panels.

Indicating or recording instruments can also be advantageously used for recording and noting the temperature of the stock in the pit under the grinder, and, in connection with paper machines, it is always desirable to know what the paper speed of production is in feet per minute and how constant For determining the paper speed, an indicating tachometer is recommended and when a permanent record is desired, a graphic tachometer will prove a well worthwhile installation.

Instruments for the Power Plant

As a general rule, most of the paper mills generate all or, at least, a considerable part of the power used on the premises. This, of course, calls for a power station, which with few exceptions consists of alternating current generating equipment Electrical metering instruments are, naturally, of paramount importance in such a generating station, for it is by their use that the frequency, voltage, power factor and output are kept within the desired limits and the load on the plant under constant

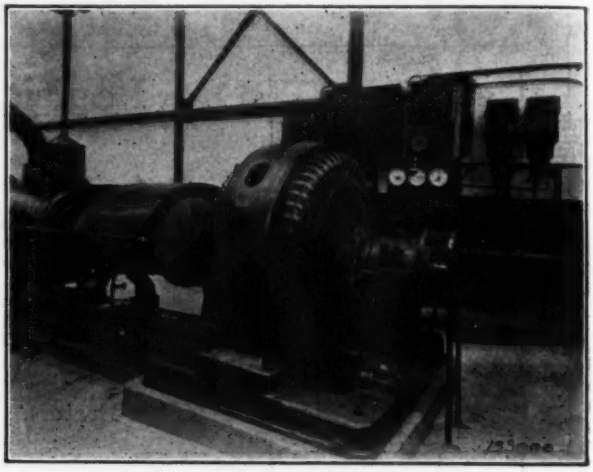


FIG. 6

Synchronous motor driving Jordan showing switch control panel with instruments in the background.

observation. Each of the generators will require an alternating current ammeter with proper current transformer for each phase, or ammeters with a three-way switch which can be used to measure the current in any phase. An alternating current voltmeter is also necessary and should be so arranged with

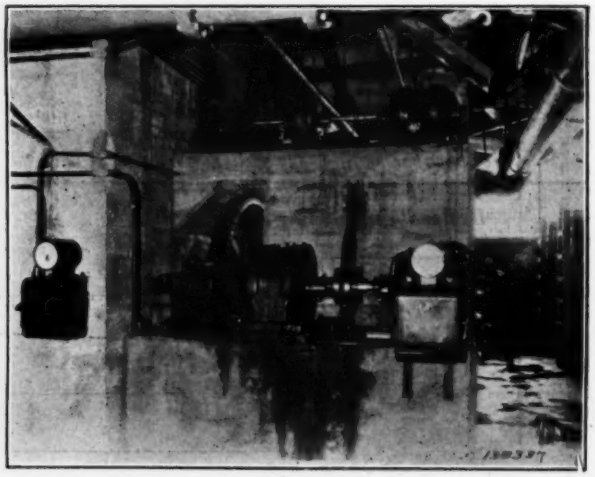
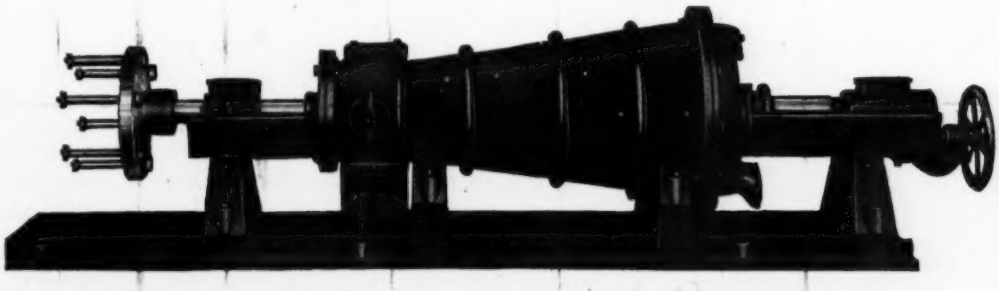


FIG. 7

Squirrel cage induction motors driving agitators showing ammeter mounted on auto-starters.

switches that it can be employed to measure the voltage of any phase for any particular generator. A synchroscope is also required to permit the synchronizing of the several generators.

Besides these instruments, it is advisable to have each generator provided with a watthour meter so that, from time to time, a check may be made of power output to coal consumption and power costs accurately determined. Also, a power factor



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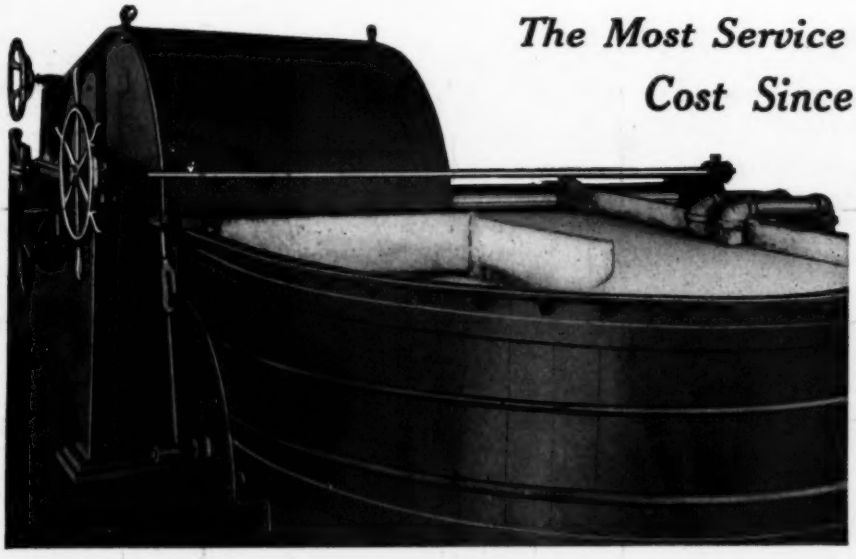

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meter and an indicating wattmeter will serve to tell at a glance what is the output of the generator. A graphic wattmeter, a frequency meter, an indicating wattmeter, a ground detector and possibly recording frequency and power factor meters are also recommended to show the total output and operation of the plant.

Graphic Meters Specially Valuable

Graphic meters are especially valuable, since they give a permanent and continuous record of the plant load and operating conditions, which if carefully preserved can be referred to from time to time to compare past loads with those of the present. Also, they show in a very neat and concise manner the demand variations and load peaks for each consecutive 24-hour period. Such records make possible close studies of load and power factor conditions and indicate how the processes should be arranged to make the plant load more uniform. On each feeder panel, there should also be at least an alternating current ammeter, with a three-phase switch connected to current transformers in the several phases, to show the ampere load on each feeder. In addition to the ammeter, an indicating wattmeter is recommended in order that the power factor and kilowatt load on each feeder circuit may be determined. Direct current ammeters and voltmeters should also be provided for the exciters in order that the proper voltage may be accurately maintained and the load in amperes observed.

A set of portable instruments, consisting of alternating current and direct current voltmeters, a polyphase wattmeter and the necessary current and potential transformers also of the portable type, should be provided for making tests and taking power measurements. A graphic wattmeter is also to be recommended for making tests over a period of time and obtaining duty cycles. Finally, where storage batteries are used in the mill, voltmeters and ammeters for testing and charging services will be required.

A New Air Filter for Pipe Lines

A new filter which can be easily inserted in air lines has recently been placed upon the market. It is claimed that this air filter will remove dust, water, oil, rust, scale and other foreign matter from air passing through pipes and prevent wear and damage caused thereby.

This filter consists of an aluminum housing enclosed in a pressed steel housing, which manufacturers claim will withstand a working pressure of 125 lbs. The filter mounted inside consists of a felt filter medium formed in pockets over radial wire screen fins grouped around a central outlet. This permits mounting a relatively large area of felt in a compact space and allows the use of the entire available area of felt with a negligible restriction. The large capacity inserts are designed to pass 250 cu. ft. of free air per minute and contain 20 sq. ft. of felt within a volume slightly smaller than a cubic foot.

As air enters the top of these filters, it is thrown against the inner wall of steel housing by a shield over the top of filter. The downward velocity carries water, oil and most of the grit to the bottom. All remaining water, oil, dust and grit is said to be caught by the filter. A drain cock is provided at the bottom to remove water, oil and sediment.

By closing a valve to shut off air going into the filter housing, and opening the drain cocks, the air in the outlet pipes or hose is blown back through the filter proper, removing all material on the filter surface. Manufacturers claim that this filter can in this way be cleaned in about 10 minutes while in operation and that cleaning is necessary but twice a year under ordinary conditions. No oil drain or cleaning tanks are necessary, and the filter does not have to be removed when once in operation.

According to literature of the manufacturers, the Staynew Filter Corporation, Rochester, N. Y., a test made by the University of California using a standard dust, 98.6 per cent of which will pass through a 200 mesh screen, gives the Protectomotor Filter a filtration efficiency of 99.9 per cent..

Summer Courses at University of Maine

The thirtieth annual summer session of the School of Chemistry of the University of Maine, will be held from July 2 to August 10, 1928, at Orono, Maine. All work completed will be given the regular University credit for either the Bachelor's or Master's degree. For Master's degree credit, however, subjects must be numbered above 50. Transference of credits to other institutions will be arranged for as during past years. Students not seeking credit will not be required to take examinations. Inasmuch as there is uncertainty as to the demand for some courses, only those are listed which are normally taken by a sufficient number of students.

The work given in chemistry and pulp and paper work during the summer is designed to meet the specific needs of:

Students who desire and are qualified to take pulp and paper courses.

Pulp and Paper Mill men with or without technical training who have had practical experience who desire to gain a scientific understanding of important phases of pulp and paper manufacture and testing or phases of work with which they are unfamiliar.

Ch 65s. PULP TECHNOLOGY.—A lecture course on pulp manufacturing processes, including equipment used, raw materials, flow of materials, etc. *Thirty lectures. Two credits.*

Ch 67s. PULP MANUFACTURE:

SODA PROCESS.—Preparation and analysis of caustic liquor; cooking charge calculations; direct steam cooking at 110 lbs. pressure; determination of speed of cooking; rate of steam condensation; caustic consumption; screening; separation of pulp on wet machine; determination of yield of fiber; bleach required.

SULFITE PROCESS.—Cooking by use of 120 gallon digester, direct steam, with recovery system; calculation of charge; cooking, with use of recording instruments, and charts and graphs; determination of relief and sulfur recovery; stock washing and screening; percentage yield by weight and pounds per cord; calculations of sulfur and lime consumption per ton of fiber and per cord; bleach required; and strength by ball mill.

KRAFT PROCESS.—Testing of liquids, yields, steam consumption, consumption of chemicals, etc. *Sixty hours class, two credits. Laboratory fee, $4 and breakage.*

Ch 86s. PULP BLEACHING.—Determination of bleach required for standard color, determination of rate of bleaching under varying conditions, effect of stock concentration and temperature, determination of oxycellulose and lignin. *Sixty to eighty hours class, two credits. Laboratory fee, $3 and breakage.*

CH 66s. PAPER TECHNOLOGY.—A lecture course on the processes of manufacturing paper. *Thirty hours yielding two credits.*

Ch 67s. PAPER MANUFACTURING. LABORATORY WORK.—Beating; sizing; loading; coloring; slowness testing; treatment of water; raw materials; examination of paper makers' supplies. *Sixty to seventy hours work. Two credits. Laboratory fee, $4 and breakage.*

Recreation facilities are many and include athletics on the University athletic field, etc.

Tuition for the session of six weeks, covering all charges for registration, instruction, library and general laboratory use is $30.00 for residents of Maine, and $35.00 for residents of other states. For registration above fifteen recitation time hours (six credits) weekly, an additional charge of $5 for two credit hours is made.

Rooms in dormitories (occupants to provide pillows, pillow cases, sheets and towels), $4.00 per week for single room, $2.00 each when two persons occupy a room. Meals will be $8.00 per week. Arrangements will be made for men who come with families.

Correspondence concerning chemistry and pulp and paper courses should be addressed to Professor C. A. Brautlecht, Chemistry Department, University of Maine, Orono, Maine.

The instructors include C. A. Brautlecht, Paul DeCosta Bray, J. G. L. Caulfield and J. F. Kolouch. Others will be obtained if needed.

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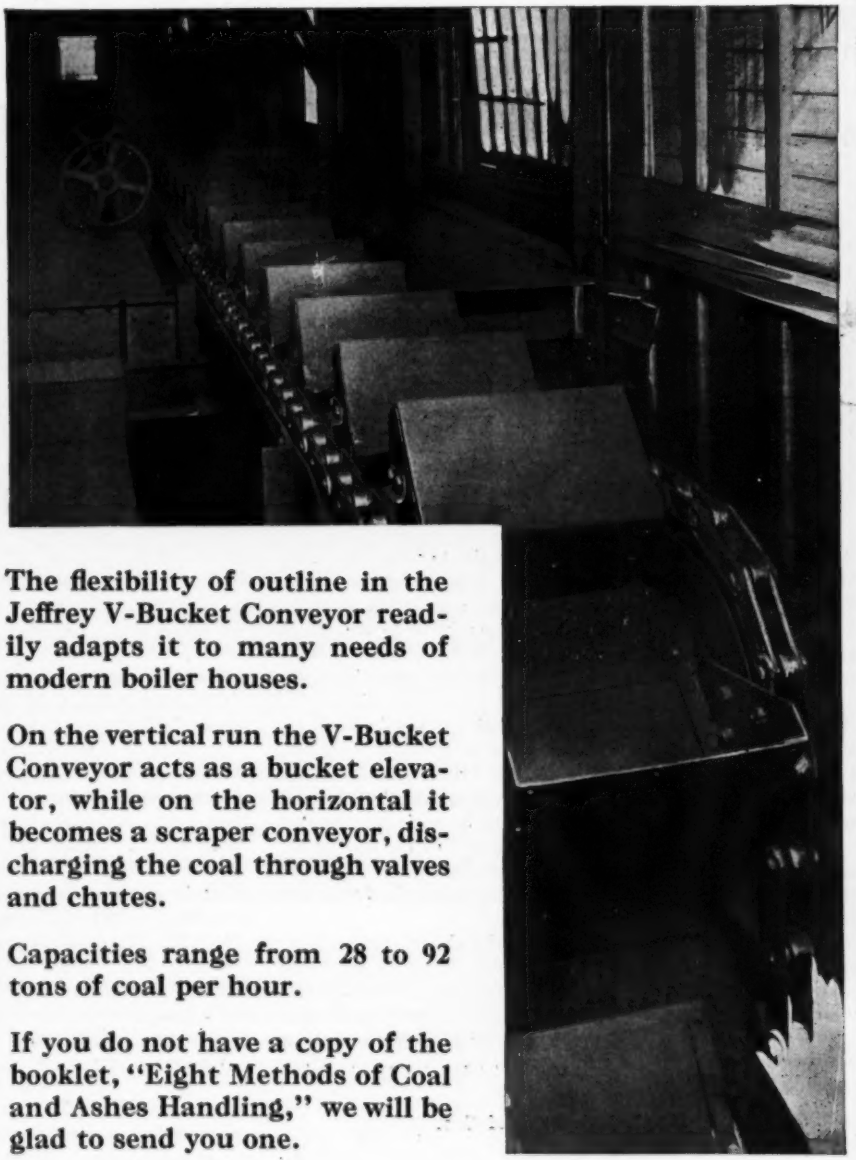

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Edited by
THOS. J. BURKE, C. A., Sec.-Treas.

Standing Timber As Wasting Asset and its Conversion into Revenue

Fundamentally, accounting must always aim to accurately translate occurring happenings into records of dependability and statements of fact. Even while recognizing accuracy, as the dominant feature of desirability, unknown quantities relative to the future, but having a very definite place in, and effect on, current affairs are frequently encountered and demand a close analysis of the position involved.

Provision for the proper accounting relative to wasting assets,—including in the considered treatment the progressive diminution of the asset itself, the cumulative charges directly effective to the property being carried in the capital accounts, also the allowable expenses incidental to its financing, all to be equitably absorbed in the production cost statements forming part of the revenue accounts,—presents subject matter for combining known factors of the present with problematical commitments which the future will develop.

Contracts and trust deeds, which deal with the financing of timber holdings and contingently with the conversion of the forest material into manufactured production, are among those matters frequently found presenting problems, which involve indeterminate quantities and amounts in money, applicable to future operations though calling for a definite and practical treatment in the affairs of current accounting periods.

A Simple Unit Basis of Cost

In those instances where the purchase of wasting assets is an outright cash transaction, the primary accounting to be established with the object of assimilating its cost in profit and loss is not complicated, being accomplished by dividing the principal sum involved by the reputed quantity content, with the addition of a reasonable margin as allowance for contingencies. A simple unit basis of cost is thus obtained, which presents little likelihood of being far from the mark so long as the quantity estimate proves reliable and the calculations are accurate.

But in a great number of cases today enterprises are financed on many arrangements other than outright cash transactions, it being quite a common occurrence that wasting assets purchased for development are financed on loan capital, repayment of which is secured by pledge of the wasting asset itself with redemption of principal planned to run in some measure concurrently with depletion. Under circumstances where arrangements of this kind exist, clauses are customarily inserted in the document of contract setting out the terms and conditions, both as to basis of settlement and the security for payment. In reference to providing against possible contingencies arising from and during the progress of operations in the venture, the protective clauses devised are liable to be very thorough and sometimes of an ingenious nature. Planning the accounting to establish a basis of unit cost should give due cognizance to possible eventualities suggested in this manner though only experience can dictate the amount, which should be included in the reckoning.

To the extent that contracts of this nature call for recognition of interest on deferred payments, the problem presents a similar aspect to that of the old "hire purchase agreement." However, there is this noticeable difference, that whereas the "hire purchase agreement" as known of old when in relation to machinery or equivalent items of substance, deals with, in the article itself after the account has been settled in full or arranged to that end, a residual value; in contra distinction in a "wasting asset contract" the purchased commodity is itself consumed as raw material with the progress of the payments. In other words, the former acquires an asset of remainder value, while the latter is itself a constituent element contributary to, and directly absorbable in, production cost.

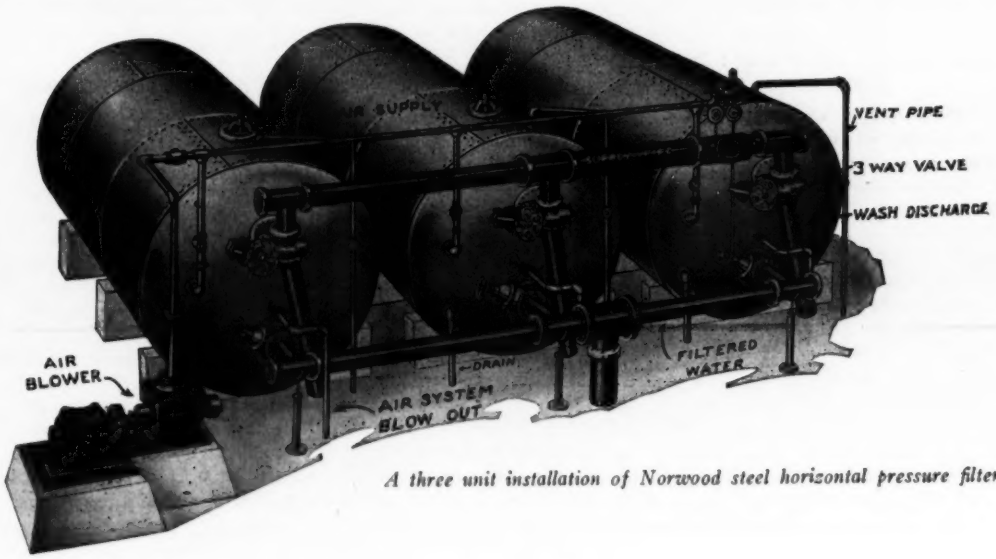
Where a clause in the document of contract particularly specifies a given rate per unit of production as the regulatory basis for settlement of the consideration, this rate will probably be established at a rate sufficiently high to pay off the whole amount of principal before the asset itself has become exhausted. A further provision may call for a periodical minimum payment. Whichever alternative governs at the accounting date the amount concerned will invariably be found to be participant to both principal and interest.

The Point Involved

The point involved here is that the unit rate of consideration payment effective under the contract is not at all likely to be the unit cost of the asset, and in the revenue statement relative to production, it is highly desirable that the unit rate used shall be the actual representative figure of cost so far as it is possible for it to be determined.

The intention is to arrive at a satisfactory unit basis of cost which will, when consistently used in relation to the production obtained during the life of the operations concerned, in the aggregate, be the sum representative of writing off the capitalized amount in respect of the property concerned. The idea being that the summarized cost of the wasting asset to be accounted for, shall include, as well as the original principal, all such expenses, charges

* The Canadian Chartered Accountant.



A three unit installation of Norwood steel horizontal pressure filters

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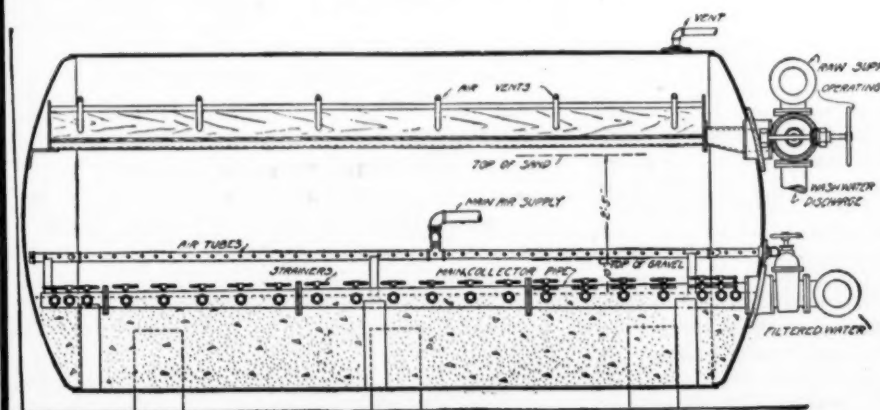
Save you money. Water can be taken from your river or stream—Norwood perfect filtration will remove pollution and foreign matter and with automatic chemical treatment will remove color and objectionable chemical content. Maintenance and operating costs are so low as to be negligible.

Improve your paper. Clean, pure, filtered water used in manufacture will improve the quality of your paper. Norwood filtration cuts down the proportion of "seconds," helps you maintain a constant standard of quality, and minimizes returns and rejections due to lowered quality and off color paper.

Help maintain continuous operation. No shut downs necessary during low water periods or freshets due to excessive dirt, leaves and other foreign matter in the water.



Cross section of a Norwood horizontal pressure filter. Notice the patented separate air wash system and strainer system used exclusively by Norwood.

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and commitments as are directly applicable to acquiring and carrying it during the course of its being reduced to revenue, the whole sum being distributed so that an equal unit price prevails as cost in the applicable revenue statements.

Calls for Exercise of Sound Judgment

The matter of settling, what the unit cost is to be, will call for the exercise of sound judgment in appraising the known factor of principal in money, in relation to the estimated quantity in kind, and in addition will require very careful application of carrying charges and expenses, together with particular knowledge as to how regulations of a statutory nature may affect the computation, as well as considering a reserve by way of providing against hazards which for various reasons may not be insurable.

In order to demonstrate the salient features which form the topic under discussion, the schedules following are stated as forming a hypothetical case for the purpose of reducing the whole to a basis of unit cost.

SCHEDULE A—Listing the main features of a contract in condensed form, with other essential particulars.

Purchase price of wasting asset	$600,000.00
Cash payment made	100,000.00

Quantity content, reliably estimated as 420,000 units.
Deferred payments basis $2.50 per unit, due monthly as operations progress.
Minimum payments to aggregate $50,000.00 half yearly.
Operations concerned designed to produce 60,000 units p.a.
Interest at 7 per cent p.a. on unpaid balances, quarter yearly adjustments on deferred payments as between principal and interest.
Expenses of acquisition, including legal costs, surveying, invertigating, etc., taken as $5,000.00.
Carrying charges, include annual licenses, fees, etc., taken as $1,500.00 p.a.
Fire loss or any other hazard to be for account of purchaser.

SCHEDULE B—Statement of cumulative capitalized cost applicable to Schedule A, to illustrate conclusions dealt with.

Purchase price		$600,000.00
Capitalized acquisition costs		5,000.00
Capitalized carrying charges, other than interest (1500 p.a. for seven years)		10,500.00
Interest treated as cost, 1st year	$31,950.00	
2nd year	23,460.00	
3rd year	14,548.00	
4th year	3,932.00—	73,890.00
		$689,390.00
Provision for contingencies		24,610.00
		$714,000.00

Estimated units, accepted as 420,000 (60,000 p.a. for 7 years).
Computed cost per unit, $1.70.
Operations over seven years, with production of 60,000 units per annum at $1.70 totals $714,000.00.

ognized as for capital account by specific reference thereto in various Companies' Acts. In regard to other carrying charges these may fairly be looked upon in the same manner as for capital account once the recognition of this point is conceded in relation to interest.

Fair Average of Revenue Returns

The object attained by apportioning the unit cost on the basis of including all capitalized charges, results in a nearer approach to charging profit and loss for each period with its true cost value. In another form, it aims to account for all the costs incurred in acquiring the asset, distributing the whole expenditure involved, proportionately as its depletion occurs. In this manner approaching nearer to the fair average of revenue returns obtained from the developed asset as a whole, based on the multiple number of units produced, period by period, until the whole is worked out.

The successful drafting of an adequate arrangement of unit cost will require familiarity with the subject conditions and specialized knowledge of the features peculiar to the industry concerned, together with a thorough survey of all the circumstances likely to be encountered in particular cases.

Shortly this brief discussion is directed at dealing with the wasting asset in its relation to periodical conversion into revenue, pronouncing the case for capitalizing carrying charges where the financing concerned is on an extended plan. For Balance Sheet purposes, so far as contractual liability and apportionment as between principal and interest are concerned, these would be treated on the merits of the case as they effectively rest at the date of the accounting, the net value of the asset at the corresponding date being in co-related position to the liability outstanding having regard to the amount written off and charged to revenue.

Much depends on the accuracy of the original estimated quantity content, this information being derived from the most reliable source available, usually the effort of professional engineers. With this information proving well founded and other computations having also been forecast in substantial accordance with the realized eventuality, the satisfactoriness of the unit cost arranged at the outset becomes provable by the lack of need for changing the

The following table shows the variation to profit and loss account over a seven-year period resulting from the capitalizing of interest in the circumstances quoted, as compared with the effect on the revenue statement if interest were treated otherwise.

PRODUCTION ASSUMED AT 60,000 UNITS ANNUALLY IN EACH CASE

	Amount absorbed in revenue on the basis of capitalizing interest as well as carrying	Amount absorbed on the basis of interest a direct charge to profit and loss, carrying charges, etc., capitalized			P. & L. Variation
		Cost	Interest	Total	
1st year	*$102,000.00	$91,444.25	$31,950.00	$123,394.25	Loss excess $21,394.25
2nd year	102,000.00	91,444.25	23,460.00	114,904.25	Loss excess 12,904.25
3rd year	102,000.00	91,444.30	14,548.00	105,992.30	Loss excess 3,992.30
4th year	102,000.00	91,444.30	3,932.00	95,376.30	Gain excess 6,623.70
5th year	102,000.00	91,444.30	.....	91,444.30	Gain excess 10,555.70
6th year	102,000.00	91,444.30	.....	91,444.30	Gain excess 10,555.70
7th year	102,000.00	91,444.30	.....	91,444.30	Gain excess 10,555.70
	$714,000.00	$640,110.00	$73,890.00	$714,000.00	

* (60,000 units at $1.70)

It will be apparent that in the case quoted the points giving rise to differing shades of opinion are in relation to what are termed carrying charges and also interest being capitalized. The conservative view as exemplified in accounting of a decade or so past would indicate that the way to treat anything in the light of expenses and interest is as losses chargeable to the period in which incurred. On the other hand, it appears very fair and more equitable to equalize the cost of its working out, proportionately, as it is converted into saleable product, to accomplish this end regarding all the commitments tied up in developing such a proposition as outlay to be capitalized, writing off period by period, the proper amount ascertained by multiples of the unit basis arrived at, in the manner herein shown. In support of the contention for capitalizing interest there is the reasonably analogous condition of interest during construction of plant being authoritatively recrate during the progress of the operations, and by the ultimate physical exhaustion of the wasting asset synchronizing with the capitalized account balancing out when the conclusion of the operations is reached.

Grays Harbor Pulp Co. To Issue Bonds

PORTLAND, Ore., June 6, 1928.—The Grays Harbor Pulp Company, according to advices from San Francisco, soon will do some financing through sale of $2,500,000 of first mortgage bonds. The new company is controlled by Zellerbach interests and Robert Polson, president of the Polson Logging Co. It is erecting a mill at Hoquiam, Wash., which will have a daily capacity of 175 tons of sulphite pulp.

The new mill and appurtenant properties, including power plants, water system, docks and warehouses, will represent a total investment of about $4,000,000.

RYTHER AND PRINGLE COMPANY
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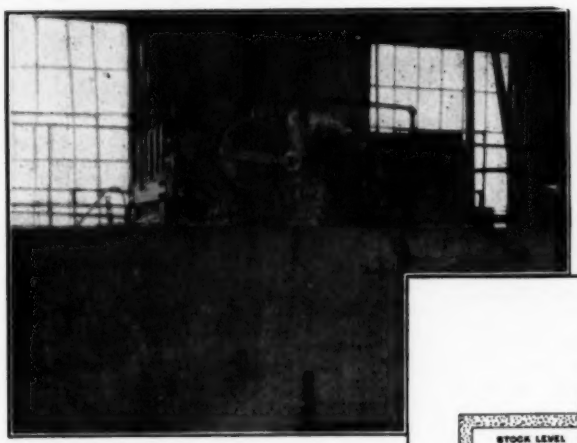
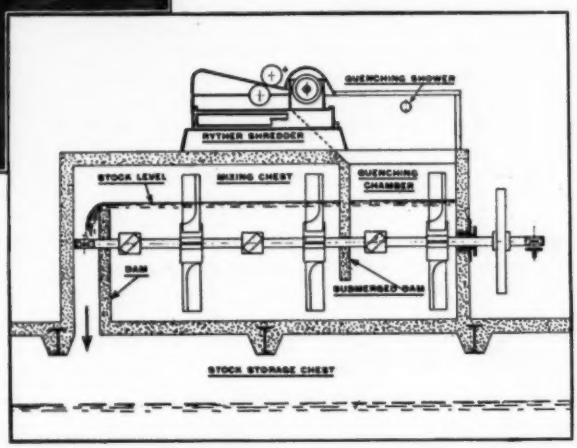
RYTHER SHREDDER



DRY SHEET PULP SLUSHING SYSTEM



This unit operates on a basis of three tons per hour and prepares thirty tons of sheet sulphite per day. The shredded product is delivered through the mixing chest where the dry pulp is thoroughly wetted and allowed to flow into the stock chest. The stock storage chest has a capacity of thirty dry tons and is built with three lines of agitators. A centrifugal stock pump circulates the stock storage chest continuously, the flow being bypassed for beater furnish when required.

FOR CANADA REFER

CANADIAN INGERSOLL-RAND COMPANY, LIMITED
10 PHILLIPS SQUARE, MONTREAL, P. Q.

New Wage Incentive Systems*

By M. M. Monroe, Compt., Inland Mfg. Co., Dayton, Ohio

The subject of Wage Incentive Systems is a broad one. It covers a dozen or more systems, ranging from straight piece-work to profit-sharing and stock distributing, and includes differential piece-work, premium, bonus, differential bonus systems, etc. It is not my purpose in this paper to present an exhaustive explanation of all the systems and combinations or adaptations of these systems but rather to make some remarks along the following lines:

1—To establish a few general principles underlying the proper operation of any wage incentive system.

2—To describe the group-bonus plan which is being used by the General Motors Corporation in the majority of its plants.

3—To discuss in a general way the advantages and disadvantages of both the group and the individual plans under different operating conditions.

Results Desired

From the standpoint of the employer, the results desired from the use of any wage incentive system are as follows:

1—Reduced Labor Costs.

2—Reduced Inventories of Work in Process.

The employee, on the other hand, is looking for:

1—A good living wage.

2—A square deal from his employer.

These results depend on two factors:

1—The method of setting rates.

2—The system of payment.

A great deal of harm has been done to the cause of friendly relations between employer and employee by the methods used in setting rates. There is the case of the "Try-Out Man," who in trying out a job once in six months was unable to compete with the workman employed continuously on that job but who, in order to hold his own job, juggles his figures with the result that the workman's incentive for increasing production was removed. That is one example of methods resorted to by employers to reduce piece rates, and it would be possible to enumerate perhaps a dozen others with which you are familiar. The worst feature about that sort of thing is not that the rates are cut but that unfair means are used and the confidence of the workman in his employer destroyed. Today there are at hand more scientific means of setting rates. The try-out man has been replaced by the time-study man and time studies are to some extent being supplemented by motion studies, and yet, while thoroughness in studying the job is essential great care should be observed in selecting men for this work; for as long as the human element remains, mistakes will be made. For this reason it is not advisable that rates be guaranteed, nor is it necessary, in order to secure production, to do so, provided management is fair and above-board in its treatment of this problem.

Brought About with Growth of Industry

In our consideration of the development of wage incentive systems we see that it has been brought about with the growth of American Industry. In the early days, when what we have come to know as "Mass Production" was unknown, factories were small, machinery was standard, skilled mechanics were employed and the day rate or hourly rate plan was universal. As industry grew, factories were larger, special machinery came into use, labor became more specialized, and the piece-work and the other individual incentive systems largely replaced day work. In recent years some industries, notably the automobile, have grown to the point where all machinery is special and the skilled mechanic has given way almost entirely to what we are pleased to call the semi-skilled laborer who does one operation on one or two parts continuously.

On account of this large volume of production in these plants difficulties arose in connection with the operation of the individual incentive system. It was necessary to provide a system for checking quantities after each operation. Some form of the lot control card method was generally used. It was necessary to provide containers and to count the pieces produced at the first operation and to post this quantity on a master card. In some cases operators doing subsequent operations were required to report their quantities claimed to a central desk where they were checked against and posted to the master card. In other cases the master card remained with the container and floating clerks were required to circulate among the workmen and to O.K. the card before the container could be moved to the next operation. Again a set of coupons was attached to each large piece or to each container of a pre-determined number of small pieces. The workmen would detach the coupons and present them as evidence of work performed. In some plants the workman was given a receipt for each lot as it was completed and, of course, job tickets showing the quantity, price and elapsed time had to be made up and extended and checked for price and extension and posted to the individual accounts of the employee. As insurance against collusion between clerk and workmen these job tickets were sometimes checked against a master lot card kept in the office.

It was necessary, in order that the lot system be operated successfully, to hold each container at the workman's machine or bench until he had completed his operation on the entire lot. This practice resulted in large investments in process inventories. Furthermore with the number of lots worked on in one day by one person running from, say, five to fifty, a great deal of time which should have been spent on production, was consumed by workmen in "checking in," as it was called.

Objectives in Mind

From the foregoing it can be seen that the objectives in the minds of those who developed the group system were:

1—The elimination of job lot systems and job tickets and the reduction of clerical expense incidental to computing payrolls.

2—The reduction of inventories of work in process.

3—Increased production per man and consequently lower direct labor costs by utilizing all of the workman's time in productive effort and by the elimination of inefficient workers.

Gang or contract work had been in use on certain kinds of work such as steam hammering, riveting, and so-called process work for a long time but the idea of grouping employees where the work was distinctly individual is comparatively new in industry. It was recognized at the outset that under any incentive system,

1—The worker must maintain an individual interest in the amount of work produced.

2—He should be guaranteed a satisfactory hourly wage.

3—He should be paid for all time saved.

4—He should be able to compute his earnings accurately and quickly.

Before taking up the discussion of group bonus it should be made clear that the emphasis should be placed on "Group" rather than on "Bonus." Both group bonus and group piece-work are based on time standards and wage standards. Under the piece-work plan the time required to do a job is converted into money when the rate is set, while under bonus or premium the rate is expressed in hours.

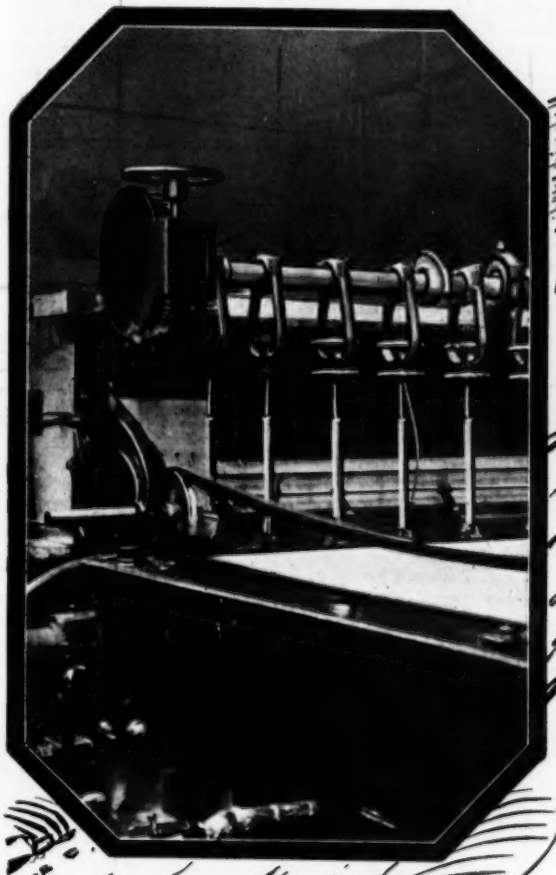
Advantages in Favor of Piece Work

There are some advantages in favor of group piece-work over the other. These are:

1—Earnings can be computed with less clerical effort.

2—Operation costs are constant. Varying base rates and vary-

* N. A. C. A. Bulletin.



On the Way to Lower Production Costs and Better Paper

Installation of the Voith Inlet is the way today to increase profits—the 1928 way of paying dividends. Mills that install the Voith Inlet are *on the way to lower production costs and better paper.* Costs are lowered by the savings in operation affected by the Voith Inlet—on either the Fourdrinier, Harper or Yankee machines.

Better paper is the result of operation of the Voith Inlet. It helps eliminate lumps and foam spots—paper is uniform in caliper—all the wire is used for formation purposes. The improved quality of paper accounts for installation of many Inlets.

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ing percentages of efficiency below 100 per cent under group bonus will result in slight variations in costs.

3—Method of computing the earnings, being simpler, is more easily understood by the employee.

On the other hand group bonus has these advantages:

1—Changes in the wage scale can be made by merely changing the base rates of employees, whereas with group piece-work it is necessary to change the piece-work rates.

2—Man hour requirements for given schedules of production can be computed easily for the reason that rates are expressed in man hours.

3—Changes in base rates of certain employees within a group will not affect the earnings of the other employees in that group. Changing base rates in group piece-work is merely a proposition of "robbing Peter to pay Paul." The total earnings of the group depend on the piece-work price and raising one man means reducing the others.

In describing the operation of the group bonus plan, as it is operated in our own plant and, generally speaking, in the other General Motors Units, the four general principles stated above will be followed.

The first of these is, that the worker must maintain an individual interest in the quantity and quality of work produced.

Indiscriminate Grouping of Employees

Attempts to install group incentive plans have failed in many cases through indiscriminate grouping of employees. Examples are an entire department in a single group, or employees in distant parts of the same department, or on entirely unrelated operations in the same group. A group should contain workmen who are doing similar operations on inter-dependent operations. There must be a community of interest which can only obtain if all members of the group can actually see the results of the group's efforts and can co-operate with each other in improving the efficiency of the group. Some groups may have as high as thirty members and others as low as two or three. The number is not important so long as this principle is observed.

Second, the worker should be guaranteed a satisfactory hourly wage.

In some bonus schemes 100 per cent efficiency pays 20 per cent bonus. By 100 per cent efficiency is not meant 100 per cent efficiency in its strict sense, but rather the standard of production. The base rate or guaranteed wage is that rate which at 100 per cent efficiency will result in the earnings rate which has been set for the employee. Minimum and maximum base rates are set for each class of work and actual rates will vary between these limits according to the length of service, individual efficiency, and general worth of the employee.

Third, the worker should be paid for all time saved.

Under the bonus system referred to above, at 100 per cent efficiency the bonus is 20 per cent and for each added 1 per cent of efficiency above 100 per cent the additional bonus is 1.2 per cent. At 15 per cent efficiency then the bonus is 80 per cent. Putting it another way, at 100 per cent efficiency the employee's earnings are 1.2 times his base rate and at 150 per cent efficiency his earnings are 1.8 times his base rate. 100 per cent : 150 per cent = 1.2 : 1.8. This will serve to illustrate the fact that an employee is paid in full for time saved over the standard production.

Fourth, the worker should be able to compute his earnings accurately and quickly.

General Picture of the System

In taking up this fourth and last point it seems advisable to tie in what has been covered in the discussion of the other points so as to form a general picture of the system.

Employees are grouped, as we have seen, according to related operations. Several of these groups make up a flow line of production. Several flow lines may exist in one department. At the end of the line and perhaps at other places in the line there are inspection points. These inspection points serve as counting points or pay points. These pay points divide the line into what are known as divisions. A division may consist of one or more groups. Credit for production, i.e., pieces produced, are given to each group within a division according to the count at the pay point for that division. It is the custom in some plants operating this system to pay all groups in a department only for the completed production of the department. One large automobile plant, I am told, has only two pay points, namely, the end of the motor line and the end of the finished car assembly line. We believe that better results are obtained by having more pay points so that the production of a group will pass a pay point that is within the department within a reasonable time after the work is actually performed.

Rates Established by Time Studies

Rates are established by time studies and are expressed in standard hours per hundred pieces. Route sheets, similar to those used with piece-work are made up for each part or assembly. These sheets show the standard time allowed for each operation and, if more than one operation on a part is done in one group, the total time for the several operations.

The actual time of each workman employed in a group is charged to that group. If a workman is employed a part of the time on a straight piece-work operation he is transferred from the group to the piece-work system. Piece-work and group bonus will not mix.

We will assume a group of five employees, which together with two other groups, forms a Division. For each piece finished by the division, each group is credited with the unit standard time for that piece which we will assume is six minutes or one-tenth of an hour. The following tables show the necessary information in its simplest form.

TABLE 1

Man No.	Hourly base rate	No. of hours worked	Hourly base rate earnings
1	$.50	50	$25.00
2	.45	41	18.45
3	.45	45	20.25
4	.50	50	25.00
5	.40	50	20.00
		236	$108.70

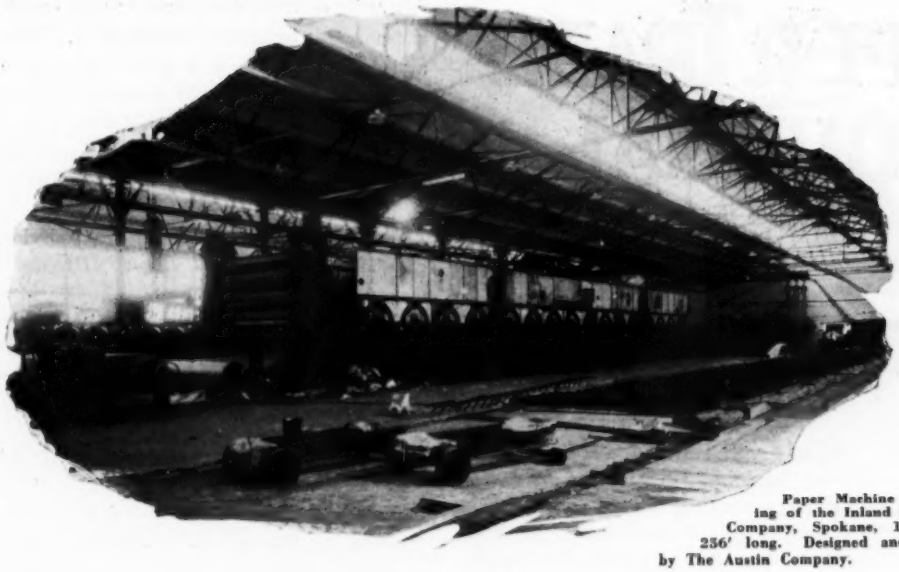
During this period 2,950 pieces were completed by the division. This quantity multiplied by the unit standard time (2,950 x .10 hours) results in 295 standard hours. This is the amount of standard time allowed the group for doing this work. But only 236 hours of actual time were worked by the group. The standard hours produced, 295, divided by the actual time worked, 236, gives us an efficiency percentage of 125 which, according to the bonus table, pays 50 per cent bonus. The amount of bonus will be figured on the base earnings which we will bring down to Table 2.

TABLE 2

Man No.	Base rate earnings	Amount bonus 50% of base wage	Total wages
1	$25.00	$12.50	$37.50
2	18.45	9.23	27.68
3	20.25	10.12	30.37
4	25.00	12.50	37.50
5	20.00	10.00	30.00
	$108.70	$54.35	$163.05

I do not think it necessary to elaborate any further on our methods but I would like to say something of the results obtained. Our objectives which, as stated earlier were three in number, have been accomplished. We have reduced clerical effort, we have greatly reduced inventories of work in process, and we have eliminated the loss in worker efficiency incidental to the old individual method. In addition to this a spirit of teamwork has been developed with the result that the employees are better satisfied under the group plan.

In conclusion, I want to emphasize this fact that, while the group bonus wage incentive system is admirably suited, as I have tried to show you, to the plant, large or small, that is engaged in repetitive work, it is not recommended for the special type of plant, nor will it work successfully in any plant unless care and common sense are used in adapting it to the conditions that exist in that particular plant.



Paper Machine Room Building of the Inland Empire Paper Company, Spokane, 142' wide by 236' long. Designed and constructed by The Austin Company.

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Speed and economy in construction.

The Austin Company has had fifty years of industrial building experience, and in the design and construction of paper and pulp mill buildings in particular, can effect real economy.

In the design of your paper mill buildings and in their construction, Austin will cooperate with your engineer and will undertake the entire project under one contract which guarantees: a lump sum price agreed upon in advance; completion at a definite date, with bonus and penalty clause if desired; quality of materials and workmanship throughout.

Approximate costs and other information will be furnished promptly, without obligation. Wire, phone or mail the memo below.

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PAPER TRADE JOURNAL
ESTABLISHED 1872

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Vol. LXXXVI New York, June 14, 1928 No. 24

STABILIZING WAXED PAPER

The waxed paper manufacturers are making commendable progress in stabilizing their branch of the paper industry. Fourteen rules of practice were adopted by the waxed paper men last Thursday at a trade practice conference held in Washington, D. C., before Federal Trade Commissioner C. W. Hunt, assisted by Markham M. Flannery, director of the Trade Practice Conference Division of the Commission. The fourteen rules will now be submitted to the full Commission for its approval or disapproval.

In December, 1927, Paul Hanway, manager-treasurer of the American Waxed Paper Association, began to study the methods employed in the manufacture and sale of waxed paper products. The situation then existent in the waxed paper industry was about as bad as one would find it in any group in the paper industry.

Too intensive competition, with the resultant abuses, had just about broken down every standard or business-like practice within the industry. In fact, the waxed paper situation appeared hopeless of improvement. Contracts were constantly ignored by the consumer or producer or else they were so ambiguous or incomplete as to fail to protect the manufacturer.

The trade customs and standards for sizes and grades were gradually ignored and as a result, overhead was doubling without consistent increases in income. Concessions in service and in materials were piling up so that the manufacturer had to meet constantly some new abuse in his competitive relationships. These and many other similar practices confronted Mr. Hanway when he took on the job.

Mr. Hanway viewed the situation as one who might anticipate entering the business. Previous training in practical economics and the ability to coordinate facts and cooperation soon told their story of future results. Within two months, a preliminary report was made by Mr. Hanway to the association's members. It provided for a program which would help to eliminate certain unfair and uneconomic practices not only among the association's membership, but in the entire waxed paper industry.

Mr. Hanway then went to Washington and made a thorough study of the possibilities of the Trade Practice Conference Division of the Federal Trade Commission, and of the Bureau of Standards, Department of Commerce. As a result, he proposed this series of resolutions, together with exhibits, statements, etc., and a trade conference was requested. The most able counsel available—Davies, Jones & Beebe, Washington, D. C., were retained for two years by the association.

In addition, the program provides for a standard form of contract—standardization and simplification—a uniform system for cost reports, an improved and more complete statistical report and an improved credit service.

The foregoing was a task for any man to tackle, and the results already attained tell a story of initiative, hard work and understanding of men and business.

The members of the association are now pulling together as they never did before; a spirit of pride and enthusiasm permeates the membership and with that spirit, results seem to be assured.

PROGRESS IN STANDARDIZATION

Summarizing the benefits of standardization to industry, James A. Farrell, president of the United States Steel Corporation and chairman of the A. E. S. C. Advisory Committee of Industrial Executives says in a foreword to the Year Book: "The industrial standardization movement is an important factor in our industrial progress. Its influence touches all our industry and commerce; hence it merits the attention of every industrial executive.

"Industrial standardization is making many of the economies of mass production available to all manufacturers of essential commodities, large and small. It is improving processes and products, broadening markets, and aiding distribution and purchase. These constructive influences are extending to the field of foreign trade.

"The standardization is acting to promote a wholesome spirit of cooperation in industry is demonstrated by the work of the American Engineering Standards Committee. The three hundred national organizations and the two thousand individuals engaged in the Committee's activities prove that widely divergent interests can meet on a common ground. These results constitute one of the most notable examples we have of the movement for self-government in industry."

The discovery or the development of the best processes and practices possible with present-day knowledge, and the extension of these, as standards, to all branches of industry is cited in the Year Book as the object of the standardization movement. The American Engineer Standards Committee has adopted 111 national standards up to the present time and is now working on 164 other standardization projects, according to the Year Book.

Continual contact is maintained by the American Engineering Standards Committee with the 19 national standardizing bodies in foreign countries, the Year Book says, with the constant exchange of standards and specifications. The Committee receives daily many requests from abroad for American standards or for information about standards in use here.

A Table of Preferred Numbers, providing a scientific system for determining the sizes of thousands of common commodities, is one of the new standards which is expected to help lessen enormous wastes in industry by eliminating hundreds of needless sizes. Preferred Numbers are being used with success abroad, the Year Book says.

Several national codes for the prevention of dust explosions in

terminal grain elevators, flour and feed mills, pulverized coal systems, and other industries where serious dust explosion hazards exist—the cause of an annual loss of hundreds of lives and millions of dollars of property—were adopted during the year. Important progress on other safety codes—especially in mechanical engineering and mining, is also noted.

A standard for mathematical symbols recently adopted as the first of a series of standards for scientific and engineering symbols and abbreviations, is expected to help clear up the difficulties arising from variations in symbols used by different authorities. Various symbols with the same meaning have been used in text-books, engineering tables and reports. The many experts called together to clear up the resulting confusion were able to agree on a single set of symbols which has now been approved as the American Standard.

"The completion by a sectional committee of several sections of the work on pipe flanges and fittings marks an important development in standardization activities," the Year Book says. "Sixty technical experts representing thirty national organizations, worked together for several years to establish standards made necessary by the increasingly greater steam pressures and temperatures used in industry. The work of the committee was followed closely by industry, and as new draft standards were prepared, industrial practice quickly came to conform with them. When several standards for pipe flanges and fitting were completed this year, they were already in wide use.

"The completion of three standards for bolts and rivets marks an advance in the effort to bring about nation-wide interchangability of small mechanical parts. The new code for the design of transmission shafting is valuable as a technical basis for the work of machine designers."

Broad revision of the rules of procedure of the American Engineering Standards Committee to keep pace with increasing demands for national standardization activities has been one of the important accomplishments of the past year, according to the Year Book. The procedure has been made more flexible so that it can be applied to any industry and to any type of standard.

Copies of the Year Book may be obtained on request to the American Engineering Standards Committee, 29 West 39th street, New York.

Discuss Five Day Week in Paper Industry

[FROM OUR REGULAR CORRESPONDENT]

BROWNVILLE, N. Y., June 11, 1928.—The annual meeting of stockholders and directors of the Brownville Paper Company was held at the mill offices this week. The directors elected for the year were Samuel Upham, George F. Clark, R. L. Pease and J. H. Lingenfelter. The officers selected were: Samuel Upham, president; R. L. Pease, vice president; George F. Clark, secretary and treasurer; J. H. Lingenfelter, assistant secretary and treasurer. Reports of officers submitted to the meeting show the company to be in excellent condition. A marked increase in business for the past year was registered over the previous year and the business outlook is said to be very bright.

Foreign Paper Men Visit Washington

WASHINGTON, D. C., June 13, 1928.—Two foreign paper men were in Washington last week conferring with government officials in connection with some business which they are transacting in the United States. They were J. G. Jeffery, of Dunedin, New Zealand and J. F. Clapperton, of Stanford-on-Thames, England. Both men are making contacts in the United States.

St. Regis Issues Good Report

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., June 11, 1928—In a statement accompanying the annual report to stockholders, F. L. Carlisle, president of the St. Regis Paper Company, reviews interestingly the firm's activities during the year. Considerable space is given in the statement to a description of the improvements at several mills.

"During the year," Mr. Carlisle said, "the company sold $2,739,900 of its 7 per cent preferred stock. The proceeds from this sale were used in connection with the expansion and construction program of the company and its subsidiaries. The additions, improvements, and complete electrification at the Deferiet mill finished at the end of 1926 made possible splendid operating results at that mill during the year but similar improvements and additions under construction during most of the year at the four mills located on the Racquette River affected operating results there adversely. This work was finished during the first quarter of 1928 so all mills of the company are now completely electrified and equipped to operate in a most flexible manner.

"The greater part of the company's business is derived from long term contracts for catalog paper with certain mail order houses and for directory paper with large telephone companies. The remaining business is obtained from sales of news print, manila, kraft, and mottled wrapping paper and waxed paper for use by the packing industries. The company's output of finished products amounts to 600 tons daily."

In another section of the statement Mr. Carlisle said: "Recently the company organized as a wholly owned subsidiary the Harrisville Paper Corporation to acquire the assets of the Diana Paper Company. The properties consist of a two machine mill with an annual capacity of 18,000 tons of paper and a ground wood mill with a capacity of 15,000 tons.

"During the year the company organized the Oswego Board Corporation and owns all of its common stock. This company has erected a mill at Oswego, N. Y., for the manufacture of insulating board from wood pulp under exclusive patents. The first unit of the plant with a daily capacity of 200,000 board feet began operations recently. The entire output is taken under contract by the Johns-Manville Corporation and marketed through their extensive selling organization under their own trade name. The company did not receive any income from the Oswego Board Corporation or the Harrisville Paper Corporation during 1927."

Regarding reforestation Mr. Carlisle stated that as a result of the company's program 1,500,000 trees were planted during 1927 on its pulpwood tracts located in the Adirondacks and it is expected that 2,250,000 trees will be set out during 1928 and increasing numbers in subsequent years. "The company and its affiliated companies," he said, "have been pioneers in this work and are among the most active groups in reforestation work in the Northeastern United States. The company now owns the entire outstanding common stock of the New Hampshire-Vermont Lumber Company, having recently acquired the minority interest of the International Paper Company. The timberlands of the company and subsidiaries located in New York, New England and Canada provide a wood supply sufficient at present capacity for thirty years' requirements.

Swedish News Print Output

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 13, 1928.—Swedish paper mills during the month of April report a total output of 12,044 metric tons of news print as against 1,457 tons during the preceding month and 15,237 tons during the corresponding month last year.

A report to the Department of Commerce states that there was no change in Swedish pulp and paper prices during the first half of May. Swedish news print for some time has been quoted at approximately $62 per short ton, while kraft wrappings have ranged in price from $90 to $139 per ton, according to quality.

THIS Belt has *Saved* $5,000!

The superintendent in charge estimates that this Goodrich 20" nine-ply "1788" belt has saved his company $4.75 per day during the 1200 days it has so far been in service. There are ten of these crusher drives in the mill, all operating under the same conditions. Belts formerly had to be renewed every 90 days, involving inordinate cost. After trying out belts of a dozen different makes, the superintendent found the solution in Goodrich "1788", and installed it on all ten drives, two of which have already run nearly 1000 days.

Operating conditions: Motor, 300 H.P.; Motor Pulley, 33" diam.; Driven Pulley, 108" diam.; Belt Speed, 5400 f. p. m.

The flexibility and durability of these belts have been still further increased by elimination of all folds and seams. The construction is now known as "1788 Highflex"; supplied in all widths and plies, open end or endless.

Write for Catalog Section 2105, which tells *why* "1788 Highflex" transmits more power at lower cost and cannot "bootleg."

THE B. F. GOODRICH RUBBER CO.
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Here are some of the reasons why these Goodrich belts are solving the hardest transmission problems:

1. **The construction is so compact that greater strength can be obtained per square inch across sectional area.**
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4. **They can be made endless, with all parts of the belt of equal strength.**

Goodrich
"1788 Highflex" Belt

Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Edited by
RONALD G. MACDONALD, Secretary

Improved Shaking Apparatus for Fourdriniers*

By C. E. Macklim[1]

Although our paper is to tell the story of our improved shake on fourdrinier machines, we wish to warn you that we also expect to describe to some extent the removable feature, because to us the fourdrinier is a unit of our machines and to speak of an improved high speed shake means also an improved fourdrinier part throughout.

We also wish to advise at this time, for fear that this paper may sound too much like an advertising scheme, that the new Beloit Fourdrinier can be obtained from any of the Builders you may wish to deal with. They, of course, may not talk this construction as strongly as we do as naturally any engineer is always a little more satisfied with his own developments but they are all licensed and can build these in their own shops, at the same time having the benefit of our drawings and experience as much as desired. We felt soon after we started to develop this feature that it should, for the good of the industry, be an open proposition so that all who wanted this fourdrinier could have a reasonable delivery. We soon found our shop could not take care of all of the people desiring this construction and of course we did not wish to enter the business of building fourdrinier parts only as we have an organization and factory built up for the complete machines which, therefore, were only suitable for a certain amount of fourdrinier work.

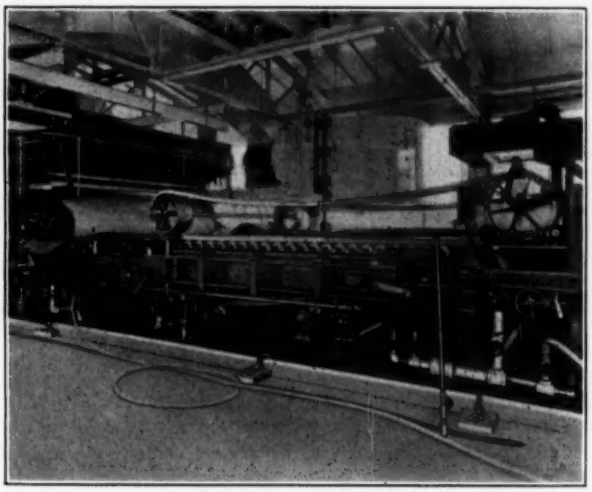


FIG. 1

Showing the Beloit Removable Fourdrinier part and the Aldrich High-Speed Shake in running condition just before shutting down to put on a new wire. This is on a Yankee Machine.

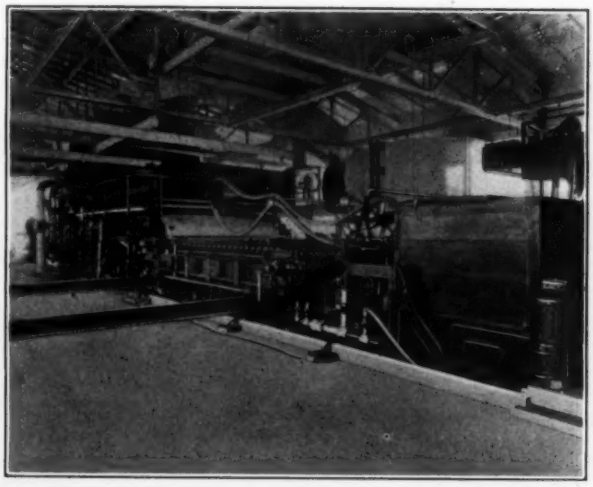


FIG. 2

Showing the removing beams in position and Fourdrinier table ready to roll out as a unit, preparatory to putting on wire.

But, getting back to the shake, we all remember that until recently, most of us had always felt that fine papers and those requiring a thorough interlacing of fibres could not be successfully made on the wide machines and at higher speeds. This had also been our conclusion and, in fact, is our opinion today insofar as the conventional type of fourdrinier is concerned. We did not feel, however, that the development of the fourdrinier machine with regard to width, speed and production should stop at one point because the old time shaking arrangements were not equal to any greater width or speeds in the machine.

While the mills were either using the old fashioned slow speed shake or no shake at all, and were virtually standing still from the standpoint of quality and speed, our President, Mr. Aldrich, contended we were all wrong and must carry our old basic principles up to where the quality could be produced at high speeds. This, of course, had the thought of increasing the speed and he

* Presented at the annual convention of the American Pulp and Paper Mill Superintendents Association, Pittsfield, Mass., May 31-June 1 and 2, 1928.

[1] Beloit Iron Works, Beloit, Wis.

set himself to the task of working out a shaking part that would carry the quality up to, in many cases double the speed formerly used on the same grades of paper, using the old shake, which was doubling the production. Thus the result of his study was our new Aldrich Shake which, coupled with the removable fourdrinier, is the subject I wish to present at this time.

The Removable Fourdrinier

Our first great change in the fourdriniers was to build the removable type which was first designed to save three or four hours of production when changing wires. We soon found this fourdrinier gave us added advantages as it enabled us to design and build fourdrinier parts that did not have to be completely taken apart and reassembled every time a wire change was made and therefore opened a new type of fourdrinier construction. Our next great problem of improving the shake was helped, therefore, by this removable fourdrinier, especially on wide machines.

The conventional type of fourdrinier at the time we started this work had a device for shaking a fourdrinier from two hundred to two hundred fifty shakes per minute and these shaking devices were arranged to change the length of stroke by shutting down and changing the position of the eccentric heads. We found that two hundred fifty strokes of the shake worked out very well on the slow speed machines, but when the machine was running five hundred feet per minute, the sheet would receive only one shake in two feet of paper and only one shake in four feet of paper when the machine was running one thousand feet per minute. It was apparent that at these speeds the ordinary type of shake had little or no value and the feeling was that if these higher speeds were desired, the shake might as well be discarded.

More Shakes Per Running Foot

The logical thing to do was to speed up the shake giving more shakes per running foot of paper but with the old type of fourdriniers this was found to be impossible owing to the

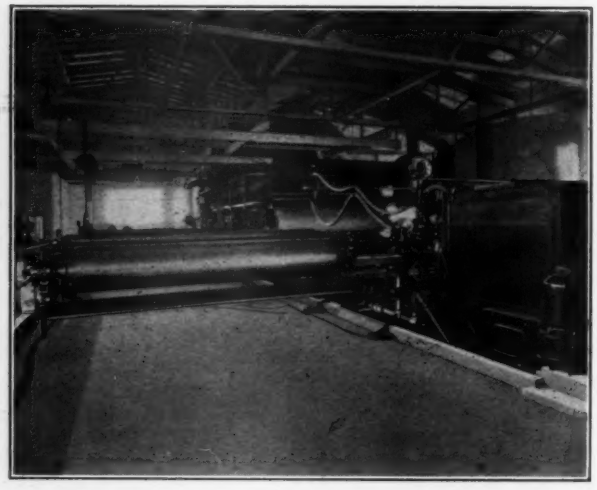


FIG. 3

Showing Fourdrinier rolled out by power as a complete unit, ready for the new wire to be placed in position.

great weight of the shaking parts, and in the ordinary machine, even then, the shake was being cushioned so that the whole Fourdrinier part would be protected from the shock and jar of this shaking device.

Other methods had also been tried. Fourdriniers had been built, designed to give greater stiffness, but these, instead of helping conditions, merely added more weight, as often times the wire rolls were included with the shakes as well as other parts, and the various truss forms and ties added simply required that the whole fourdrinier part be still more carefully cushioned to protect it from the shake.

This cushioning effect upon study was found to destroy the real usefulness as it is this sharp jar or jolt on the reversal of the stroke in each case which settles and interlaces the fibres. This jolt was being obtained on the narrow, small machines nearly the same as it was in olden times obtained by the hand

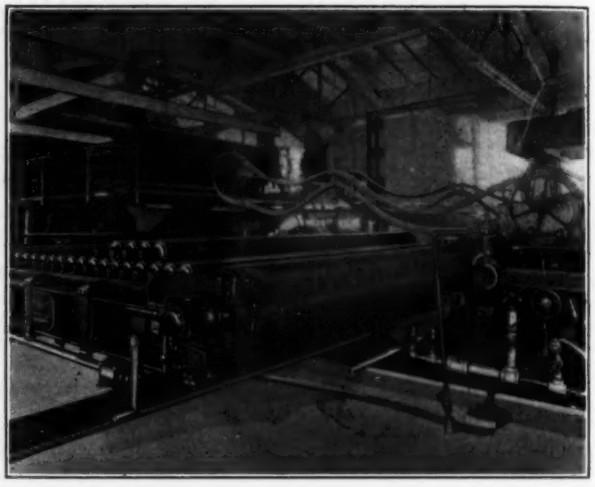


FIG. 4

Showing the new wire draped and the Fourdrinier table rolled half way back into position.

paper maker who, in lifting his mould full of stock from the vat, would shake it several times before the water drained out in order to interlace these fibres; but on the cushioned shake this had been lost almost entirely.

Adjustment of Shake

On going into this subject further, we also found that most mills, even on the smaller machines, were not getting the full benefit of this shaking action because the speed of the shake was difficult to adjust and the length of stroke had to be changed while the machine was shut down. All stocks, of course, do not act the same and in fact, the same stock acts differently on the wire at different temperatures and when making different weights of paper. Thus, we found from our studies that the shaking device should be so built that the paper maker could adjust it easily both for speed and for length of stroke while the machine was running and from a position from which he could easily observe the appearance of stock on the wire. Added to this, it was necessary that this shake be so arranged that the fourdrinier could be easily adjusted as to pitch during this same time.

The above conclusions gave us the information, and basis for building our improved type of shaking device. Briefly summarized, this would be about as follows:

1st. As with all paper machinery, this shaking device must be absolutely reliable, capable of giving continuous service with a minimum amount of attention, care and upkeep.

2nd. The shake produced must be efficient and give the desired results on wide and high speed machines which means that the fourdrinier part of these machines had to be specially designed so as to give as light a shaking part as possible, at the same time maintaining the stiffness and strength necessary. Also, this shake must be applied to the fourdrinier in a simple way and avoid the cushioning effect and yet it must be applied in such a way that it can be used on the removable fourdrinier, as we felt sure at that time that all machines both narrow and wide would soon be built in this manner.

3rd. To make a shaking unit in which speed and throw could be easily adjusted while the machine was running and which would allow the fourdrinier part to be lowered or raised at the same time.

The first improved shaking device was built for a new machine

which we furnished for use on kraft papers. This machine was shipped during 1923. It soon showed its superiority in action, the Vice President and General Superintendent, writing us at the time that it was an easy matter for them to obtain any kind of formation desired. "For instance," he said, "we are able to close up our long fibered kraft stock into a sheet with the formation of book paper. We can increase our pop test to 110% and often to 120% with the proper adjustment of our shake."

Construction Details

The shake pedestal itself which we use is low down, very compact and solid, the driving shaft being 4 inches in diameter and is geared direct to a direct current variable speed motor. The control for this motor being placed either on the front side of the fourdrinier part or on the shake pedestal itself, wherever desired by the operator. There is a hardened steel shaft extending through this main driving shaft which regulates the length of stroke or throw of the shake. This is provided with Timken thrust bearings and this throw is regulated by a hand wheel connected to this internal shaft. On small machines this shake pedestal can be connected to the fourdrinier part by means of a bell crank but on the wider and removable fourdriniers the pedestal is connected to a very large diameter shaft 6" to 10" located by the sole plate from which extend several arms connecting to the back fourdrinier rail in several places.

The fact that the shake is connected to the breast roll and table by means of several shake arms allows you to shake a part of the table rolls only, if desired, by disconnecting one or two shake arms, or, if the operator does not wish to shake the table rolls at all but does wish to shake the breast roll, this can be arranged easily.

The breast roll posts are dispensed with as they are heavy and not adapted for doing the work under high speed. The breast roll is mounted in Timken bearings and one of the shake arms is connected direct to the housings. The roll is supported on long

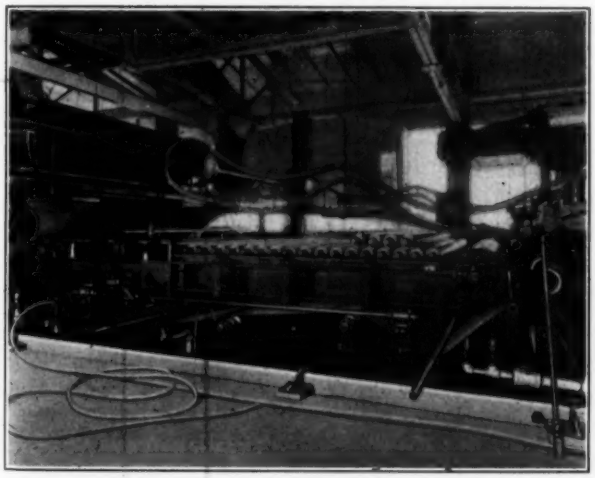


FIG. 5

Showing Fourdrinier section back in operating position, ready to remove wire poles and tighten wire.

flexible leaves from a heavy stationary post that does not have to be shaken.

The table rolls also should be mounted in Timken bearings as these make for better wire life, require less attention than plain bearings and eliminate the wear and end play which is found with the plain bearing type. I believe we have all seen at some time old fourdrinier parts, the frames of which were shaking but the table rolls and wire were practically still, the shake being taken up in the bearings of the rolls. The table rolls with this improved shake are mounted on light stiff rails which are supported by long flexible leaves from the heavy stiff under-framing of the machine, which is not shaken. Thus these table rails need only be strong enough to hold the rolls and prevent whipping and by connecting the shake in several places instead of just at the breast roll, as used to be done, this weight can be reduced greatly. The slices, deckle rails, cross shafts, wash troughs and other equipment that is often times supported on these table rails

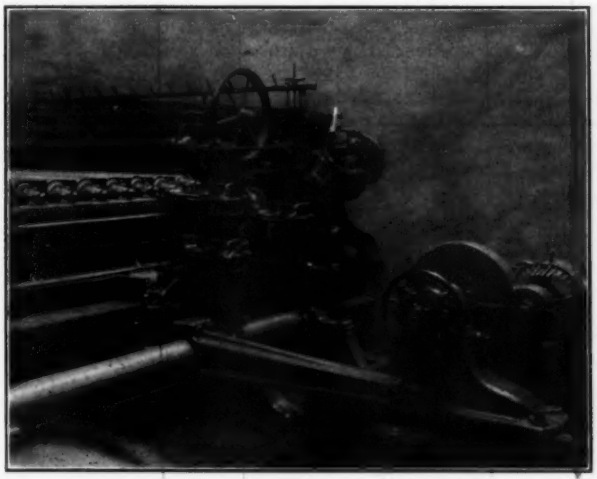


FIG. 6

Aldrich High Speed Shake Head and Shake Mechanism.

for best conditions should be supported from the non-shaking part of the fourdrinier.

New Materials of Construction

In addition to lightening the fourdrinier part by elimination, we have also found it possible to lighten this greatly by the use of other materials for the rolls and any braces necessary. For example, the table rolls instead of being made of brass tubes are made of aluminum tubes which weigh less than a third of the brass. The heads are also made of aluminum and also such parts of the rails and bearings as possible. These aluminum rolls give very good results, although in many cases, owing to the nature of the stock and of the water to which the mill has access, it is advisable to have them covered with rubber or brass. The same saving in weight is also made in the breast rolls which are made up of lightest possible construction consistent with stiffness. Also the connecting parts of a shake to the breast roll are made of aluminum alloys. The breast rolls are sometimes covered with rubber or in some cases stainless steel or other materials which are best adapted to the conditions in certain mills. We use stainless steel a great deal on this fourdrinier part as because of its great stiffness and strength as compared with brass it makes a better construction and a great saving in weight, and although the stainless steels are much more expensive than the brass, the fact that the weight is less makes the comparison in cost very favorable.

This saving in weight may not seem to be of utmost importance to some of you but when you stop to realize that on a 160" machine we have been able to reduce the weight of a shaking part five tons, we believe you will recognize how much more this high speed shake can accomplish than with an old conventional fourdrinier. This great saving in weight accomplished both by substitution of lighter materials and improved designs enables us to build 200 inch and 247 inch width machines for book, kraft, and bond paper, giving them a quick, sharp, lively shake of four hundred strokes a minute, thus making them capable of higher speeds at the same time making a better sheet than the old time narrow machines.

There is another great advantage which is accomplished by means of lightening up the various rolls on the fourdrinier parts in addition to the fact that it makes the shake more efficient, and that is, it reduces the load to be pulled by the wire and which we have found makes a substantial saving in wire life.

The wire life has also been helped by a number of features of the removable fourdrinier in addition to the light rolls. You are all, no doubt, familiar with the removable fourdrinier so we will not go into a description of it at this time. The whole idea is that all the parts such as table rolls, breast roll, wire rolls, shower pipes, savealls, suction boxes are all combined in a unit and are rolled to the front of the machine by means of a smaller motor geared into the wheels instead of all parts being removed, then replaced, one by one. When the fourdrinier is removed, the wire is placed on a wire carriage which is furnished and then run over the couch roll. This couch, if of the Beloit suction type, is a cantilever roll which can be supported from the back journal when changing wires. After the wire carriage is run in position placing the wire around the couch, the carriage is wheeled toward the breast roll unrolling the wire, the crew supporting it by putting in place the wire poles furnished. This leaves an open loop into which the fourdrinier unit is rolled again and locked in position.

This arrangement saves time in wire changing as a wire on the largest machine can be changed just as easily and quickly as on a small one. This was to be the big advantage of this construction when first designed, but one of the first improvements was the wire carriage as described and the cantilever suction couch roll that practically eliminated the handling of the wire. This immediately makes a saving of wires as the bad edges, cracks and creases caused by handling heavy wires in cramped quarters by a great many men are eliminated.

Lengthening Wire Life

The next thing that helps wire life is that the rolls are not scraped, burred or dented, also they stay in the exact position and alignment as when the machine was first installed, thus eliminating the changing of rolls, putting them in wrong bearings that cramp and run hard, and the changing of their position to make the wire guide properly after starting the wire. This same applies to the suction boxes that are not moved with relation to the rest of the machine except when removed to have their covers dressed. These points all help and lead to better wire life.

The suction box oscillator which is used to keep the boxes moving under the wire at all times is also a great help in wire life. This keeps the suction box covers smooth, cuts down the wear, prevents paths or grooves being worn by the wire, eliminates to a large extent planing covers by distributing wear over a large surface, and helps guide the wire saving the edges greatly.

The results achieved by the improved type shake have been much greater than anything we ever expected to accomplish and we are pleasantly reminded of that fact often times, as when recently we wrote a mill with our improved type fourdrinier asking them the tearing strength of their paper under certain conditions, we received a letter in reply which, after giving us the information for which we asked, advised that the writer found it necessary to go to the mill and make these tests because their tester had fallen into disuse as with the new type shake it was so easy to accomplish the desired results. He advised that he had not received a kick from his bag factory for a year, which he felt was very close to perfection. It is, of course, very gratifying to receive such high endorsements and also to check over the list of repeat sales which are the true measure of a machine's usefulness. We believe you will be interested to know that there have been built and are on order about seventy removable fourdriniers, all of which, excepting those used for news print entirely, are equipped with this high speed shake. Also, of these seventy machines, twenty-seven were built from our design and under our patents by other builders. In addition to this there have been five or six new machines with non-removable fourdriniers with this high speed shake. In addition to the new machines, we have about twenty of these high speed shakes applied to old machines and in all cases where one has been installed the mill has found it of great advantage and has laid its plans for installing this equipment on all the machines in the mill.

Summary

We are a little afraid that our leaping from one point to another in the above article has been a little confusing and now wish to sum up the whole paper very briefly. A few years ago, the shake was about to be discarded on many papers; now it is again highly regarded on all except news print and there has been talk of again using it in this place to help make the better formation and finish demanded these days, and who knows but in a few years we will again see a shake on news machines. This increased importance of formation and finish to the paper buyer in these days of high standards has brought the shake back to its position of importance and this High Speed Aldrich Shake enables us to build, and the mill to operate machines at twice the speeds and twice the widths, at the same time getting a better sheet than ever before.

The Use of Corrosion Resisting Steels in the Paper Industry*

By John A. Mathews, Ph. D., Sc. D.[1]

The courtesy and honor of an invitation to address you today is greatly appreciated. It seems to me that the paper makers spend too much time attending paper conventions, and the steel makers too much time attending steel conventions. It might prove of more value if we attended more of the conventions of the other fellow, for no industry is independent of other industries. You cannot sell your paper to paper makers, nor we our steel to steel makers. The history of both industries dates from remote antiquity, prior to the Christian era, and probably the beginnings of both are to be sought in China. The paper industry is a fundamental one in the transmission of intelligence, while the steel industry is fundamental in transportation by sea, land, or air.

I have come here quite as much to learn what your problems are as regards materials of construction, as in the hope of being able to instruct you. However, there are certain recent developments of metallurgists which may be of interest to paper makers, particularly in connection with the use of corrosion resistant steels. These are the result of the research and developments of metallurgists, not only in this country, but also in England, France, and Germany. As a matter of fact, our industry developed these products long before there was an apparent demand for them in industry. It is only within the last few years that their use has received serious consideration in the field of chemical technology. Strange as it may seem, nitric acid is about the easiest of the various well-known chemicals to handle, and decided progress has been made in the use of chromium alloy steels in the construction of nitric acid plants.

It may interest you to know that one of the very first experimenters with alloy steels was Michael Faraday, somewhat over 100 years ago. And one of his declared purposes was to produce a steel resistant to tarnish and corrosion, for the manufacture of metallic mirrors and reflectors. He did not accomplish his pur-

*Presented at the Annual Convention of the American Pulp and Paper Mill Superintendent's Association, Pittsfield, Mass., May 31, June 2, 1928.

[1] Vice-President and Metallurgist, Crucible Steel Co. of America.

pose, but almost exactly 100 years after I had the pleasure of furnishing Mt. Wilson Observatory an alloy steel disc which was ground flat to 1/500,000 of an inch of perfect flatness, and which, after three years of use, was still reflecting as much light as ever.

I have used the term, "corrosion resistant," purposely, in the interests of strict accuracy. The term, "stainless steel," as it was first introduced, is somewhat misleading, because the product so described is only stainless under a limited variety of conditions, while under others it may show a stain or tarnish, which is not, however, progressive, and does not lead to real pitting or corrosion. Again, to certain other forms of chemical attack it is not resistant at all, or only slightly so. It is of fundamental importance to remember that none of the modern materials is good under all circumstances. The term "non-corrosive" is also objectionable, or at least not accurate, even though the rate of corrosion may be extremely small. In one case, for example, the test with warm, strong, nitric acid showed that it was attacked at a rate at which it would require 1,000 years to consume a one-inch plate. The same material in sulphuric acid of 80 per cent strength, and upward, would have lasted only one-fourth as long, or 250 years. While these rates of attack are extremely low, nevertheless we cannot say that the materials are non-corrosive.

Tests, as described, are easily carried out in the laboratory. Unfortunately, the mixed conditions met with in industry are not so simple where several agents may be simultaneously involved, and when actual temperatures and pressures are not known, or easy of duplication. In some cases, it happens that one of a group of reagents might attack a particular alloy, but it is totally restrained from doing so by the presence of other materials. For instance, dilute sulphuric acid is active in its attack on stainless steel, but its attack may be entirely prevented by the simultaneous presence of cupric or ferric sulphate.

One of the difficulties we have commercially is in finding out what the different conditions of use are in industries. For instance, we recently had an inquiry for material to resist something described as "black liquor." That may be a well-known mixture to paper makers, but it is not well known to steel makers. If the correspondence had been on the subject of *bad* liquor, our industries would doubtless have met on common grounds. I cite this as an illustration to show how necessary it is that we have the fullest knowledge of the problems involved.

I think I may assume that I am not addressing an audience of metallurgists. I will try, therefore, to make plain to you, without going into too great detail, how far we have progressed with materials which may be of great interest to you in your industry. In general, there are two distinct classes of steel to be considered. First, the commercial product known as Stainless Iron or Steel. The difference between these two products is in their carbon content, the "iron" being below 0.12 per cent carbon, and the "steel" being above 0.12 per cent. This is a purely arbitrary classification. Practically considered, the main difference is that the former is quite resistant to corrosion without hardening, while the latter requires hardening to confer satisfactory resistance. Both the iron and the steel usually contain 11.00 to 14.00 per cent chromium. Metallurgically, they are considered as belonging to the pearlytic type. That is, they respond to hardening and tempering just as do ordinary steels, or structural alloys. These products are the result of the investigations of Mr. Harry Brearley in Sheffield and the late Mr. Elwood Haines of Kokomo, Ind. They are covered by patents which are owned by the American Stainless Steel Company. In the first instance, their use was almost exclusively devoted to the development of cutlery and for this purpose Stainless Steel has almost supplanted carbon cutlery steel. The Crucible Steel Company of America has been manufacturing steels of the stainless type since 1916. When the chromium exceeds about 16 per cent, these alloys lose their capacity for hardening. They must be used in the natural or annealed condition in places where very great strength or hardness is not required. They are, as a matter of fact, very soft, ductile, and machineable, and their resistance to corrosion, or stain, is somewhat increased with increasing percentages of chromium. When very great strength and hardness, as well as resistance to corrosion are desired, the stainless iron or steel, at about 12 per cent chromium, is required. Such material has already been successfully used for beater bars and bedplates, and in Jordan bars. For such purposes, it can be provided with a considerably greater degree of hardness and strength than bronze, or the ordinary steels which have been used in the past. As compared with bronze, this material is about 10 per cent lighter in weight, and also lower in cost. Under ordinary conditions of operation, it should not rust or tarnish at all, and during periods of shut-down, if tarnish does occur, it will be extremely slight and no progressive corrosion or pitting is likely to occur.

The second division into which the corrosion resistant steels may be classified is that of the austenitic steels. These materials are very different in their physical characteristics from the ordinary or pearlytic steels, to which class the so-called stainless steels belong. So far as our discussion is concerned, they are primarily limited to steels containing a fairly high nickel and chromium content. To a certain extent these two elements replace one another in converting ordinary steel into the austenitic type; that is, the chromium may be higher than the nickel or vice versa. These steels were first developed in this country by Mr. Chas. M. Johnson of our company, some fifteen years ago. In addition to the chromium and nickel, various other elements may be added, notably silicon, and the silicon-chromium-nickel steels have been patented by Mr. Johnson and are known under the trade name of Rezistal. This name was selected because of their very high resistance to very many physical conditions, such as high electrical resistance, high resistance to scaling at high temperatures, high strength at high temperatures, and the highest degree of resistance to a very great number of chemicals. To meet specific requirements of different chemicals, a number of different types of Rezistal are manufactured.

A word in regard to the origin of the austenitic steels may be of interest. The chromium nickel type seems to have been developed at the Krupp Works, but the American patents covering their products were not issued in this country until after the war period. During the war period, our investigations were in progress independently and without knowledge of the Krupp developments. They are not, however, the same steels. For the most part, Rezistal Steels not only cover an entirely different range of composition, but they also feature silicon as an intentional and important addition. For particular purposes sometimes further elements are added to the chromium-nickel-silicon and in our early investigations in the war period, our experiments included beside these three elements, the effects of copper, titanium, molybdenum, tungsten, vanadium, cobalt, and tantanum. We do not claim priority on austenitic steel as a class, for developments of this type are likely to originate in several countries independently. We did make our own investigations independently without knowledge of what was going on in Europe during the war, and reached conclusions differing from those of various European metallurgists, whose efforts we have no disposition to belittle, but rather, knowing the difficulties which such investigations involve, we are possibly in better position to appreciate to the utmost the valuable European contribution to the metallurgy of austenitic steels.

When working with this class of alloy steels, we simply have to forget a great many things that we may have learned about ordinary steel. For example, they are totally non-magnetic; they do not harden at all by quenching from a red heat. In fact, such treatment softens and toughens them. Ordinary steels are seriously injured by overheating for hardening, while these steels become progressively tougher by such treatment, even up to a white heat; that is, they are actually made softer and more resistant, to shock tests, and their elastic limit is reduced by such treatment while their plasticity is increased. Until these fundamental distinctions were appreciated, some little difficulty was experienced in

handling them. By their very nature, they are relatively hard at high temperatures and this makes them somewhat more difficult to forge or roll. The addition of silicon, usually to the extent of 2 per cent to 3 per cent, is found to improve very materially the welding qualities by either the electric arc or acetylene methods. A skilled welder with a little experience would have no difficulty in welding them, and the weld itself will be found to be quite as strong and ductile as the metal adjacent to the weld. In this particular, they are very much easier to handle than ordinary steels or the chromium alloys. The particular types of Rezistal which are found most promising in the paper industry are designated as Rezistal No. 2 and Rezistal No. 4. The former of these shows very good resistance to sulphur dioxide or sulphurous acid. Therefore, it offers considerable promise in connection with the sulphite pulp process. Rezistal No. 4 is probably a little superior in some regards, but is also more expensive and therefore it seems that Rezistal No. 2 at present appears of greatest interest in connection with the sulphite process. This steel has been found not only extremely resistant to sulphurous acid and sulphites, hot or cold, but also to alum solution, fresh or salt water, and to sodium hydroxide in various strengths, hot or cold. It is also the best ferrous alloy we know in its resistance to acetice acid. In addition to these properties at ordinary or boiling temperatures, this material also possesses very excellent resistance to high temperatures which produce serious scaling in ordinary steels, and to the products of combustion when exposed to furnace atmospheres. This feature makes it of extreme interest in oil cracking stills or other furnace parts subjected to severe temperature and scaling conditions. The same type of steel has been used successfully for beater bars, etc., and for such purpose we would have to rely on the natural hardness of the material as rolled, and unless some particular corrosive condition is present, it is probable that the stainless iron previously discussed may prove even more satisfactory and at a lower cost, because of the ability to harden and temper it to any desired degree.

I have now described briefly the outstanding points of both the pearlytic and austentic types of corrosion resistant steels which may be of interest, and will give a few specific instances and tests in regard to their resistance to corrosion or chemical attack. While from a truly scientific standpoint, I prefer to call these materials "corrosion resistant," yet it should not be overlooked that this degree of resistance may in some cases be 100 or 1,000 or 10,000 times as great as that of ordinary steel. I prefer, however, not to mislead you to expect either too much or the impossible.. For example, these products tested in a stream of steam and sulphur dioxide for four hours lost less than one milligram per square inch by such treatment. Under the same conditions, a sample of ordinary carbon steel lost 25 times as much. We have previously referred to the test with glue and alum and in this test Rezistal No. 2, after 72 hours at atmospheric temperature, lost 0.24 milligrams per square inch, but three hours at 80 to 100° C, or just short of boiling, caused no loss whatever.

Three samples of Rezistal No. 4, submitted to ten separate treatments in a sulphite digestor, showed an average loss of 0.011 per cent, by weight.

Samples of Rezistal No. 2 and No. 4 were boiled for two hours in a 15 per cent caustic soda solution, when the loss was respectively 0.01 and 0.005 milligrams per square inch, which is practically negligible. The same solution was then continued at a boiling temperature until it was concentrated to a consistency which solidifies on cooling, after which neither sample showed any loss whatever.

These properties look very promising for these materials in connection with the construction of sulphite pulp apparatus, while for most purposes it would seem that the stainless iron would be equally successful in the beater or jordan mills.

We do not wish to worry you with too much detail of laboratory tests; furthermore, we cannot as yet afford to be dogmatic in our statements or recommendations. What we want to enlist is your co-operation and to promise you ours in the working out of your corrosion problems. Sometimes various modifications are necessary in the standard types of materials to meet a particular condition, and we can most successfully respond to these special requirements when we most fully know in detail what the requirements are. In general, we may state, however, that steels of the first class are readily hardened and tempered, are quite readily machineable, and can be punched or drilled. For the most part, in the fabrication of tanks, etc., in this grade of materials, riveting is to be preferred, although welding may be done in cases where high temperatures or high pressures are not involved.

As regards the second class of steels, they may also be machined with somewhat greater difficulty than the pearlytic steels. They may be punched, but the tendency of these alloys is to somewhat harden under impact or cold work. They may be either welded or riveted.

We have stated that the early experiments on these steels took place quite a number of years ago, but their introduction was deterred by the fact that there were no fabricators ready to handle them in the manufacture of deep drawn or pressed shapes or in the form of tanks, etc. Not over five years ago a firm of chemical manufacturers were greatly interested in the resistance of one of our products to the chemical they manufactured and wanted to secure it in the form of carboys or shipping containers. At that time there was not one concern whom we could locate that was willing to undertake the fabrication of these containers. Now all this is changed and there are a number of responsible fabricators who have during the past three or four years had extensive experience in the fabrication and erection of chemical plant equipment, including both welding and riveting jobs, doming operations for the manufacture of tank or still ends, and also considerable progress has been made in the manufacture of seamless tubing from various grades of alloys. Already several thousand tons of materials have gone into industrial plant equipment, and we will be very happy indeed if you will let us know just what problems are confronting you in your industry and let us see what we can do to solve them.

First Generator in Paugan Powerhouse Turned Over

The first generator in the Paugan, Quebec, hydro-electric plant of Gatineau Paper Company has been turned over. The powerhouse, which is one of the largest hydro-electric stations on the North American Continent, is on the Gatineau River thirty-three miles north of the City of Ottawa, the capital of Canada, and is designed for 272,000 horsepower in eight generators of 34,000 horsepower each.

Twenty-six miles below the Paugan development the Chelsea and Farmers hydro-electric plants of Gatineau Power Company are in operation and are delivering power to the Gatineau news print paper mill of Canadian International Paper Company. These two plants are designed for a total of 290,000 horsepower, of which 174,000 horsepower is now installed.

On October 1 of this year, Gatineau Power Company will commence deliveries of electric power under two contracts to the Hydro-Electric Power Commission of Ontario. The first contract calls for annually increasing quantities of power until October 1, 1931, when the fixed maximum demand will be 260,000 horsepower and the total yearly kilowatt hours to be delivered approximately 1,190,000,000. Under the second contract an additional 100,000 horsepower is reserved for the Commission, which agrees to take at least 60,000 horsepower. This power is to be taken in minimum annual increments of 6,000 horsepower for ten years beginning October 1.

The Commission will take the balance of the 100,000 horsepower during the ten years as fast as needed.

The Gatineau Power Company is a subsidiary of Canadian Hydro-Electric Corporation, Limited, which, in turn, is a subsidiary of International Paper Company.

Results with Testers for Measuring Tensile Strength of Paper*

By R. E. Lofton[1], L. W. Snyder[2]

I. Introduction

The tensile strength of paper is one of the important properties contributing to the serviceability of the material. Requirements as to this property therefore form an important part of the specifications for many kinds of paper.

In view of the fact that there are six types of testing machines now in general use for measurng the tensile strength of paper, it is obviously important to the industry to know how closely the results obtained with machines of different types may be expected to check each other.

II. Description of Testers Used

Testing machine manufacturers were requested to cooperate in this investigation by submitting machines of the proper capacity for testing paper. The authors wish here to express their appreciation of this cooperation.

Type A is a vertical, pendulum type machine. The lower clamp, through which the load is applied, is pulled downward by a water motor to which it is directly attached. The load is transmitted through the test specimen to the upper clamp, which is attached directly to the pendulum, and is indicated by the angle which the pendulum makes with the vertical. A pawl is provided to hold the pendulum in place when the paper breaks.

Type B is the same as type A except that it is operated by an electric motor through a set of reduction gears and long screw. A sector and pinion attached to the upper clamp and pendulum moves a pointer over a graduated dial to indicate the load applied.

Type C is the same as type B except that the lower clamp is operated by a worm and wheel, which is turned by hand.

Type D is also operated by hand, motion of the wheel being transmitted to the lower clamp through a pair of bevel gears. The upper clamp is attached by means of a stirrup to a plunger operating in a cylinder filled with oil. The applied load causes pressure on the oil, which is indicated by a Bourdon-tube pressure gauge.

Type E is a portable horizontal type. One clamp is fastened directly to the machine frame. The other clamp is attached to one end of a spring, the other end of which is fastened to the protecting tube in which the spring works. The load is applied by means of a hand lever which moves the tube lengthwise, away from the fixed clamp. The resistance of the paper causes the spring to stretch, and the load is indicated by the differential movement between the clamp attached to the spring and the tube. This movement is indicated by a gauge, which is calibrated against the spring, so that the dial reads in pounds.

Type F is also a portable horizontal type. The pulling clamp is attached to the end of a screw which is operated by a hand wheel. The other clamp is fastened to one end of a metal strap, the other end of which is fastened to a cam which carries a pendulum. The position of the pendulum is indicated by a dial to which it is connected through a reducing gear.

In testers A, B, and C, the speed of the pulling clamp was, as nearly as practicable, six inches per minute. Since C is hand operated, this rate was only approximate. D, E, and F, were operated at such a speed that the time required to break the paper was about the same as that required to break the same kind of paper when tested in machine A.

At the beginning of the test, the distance between clamps was 4 inches in machines C and D, 3.6 inches in A, and 2 inches in B, E, and F. Previous work indicates that this will make a difference of about four per cent, in favor of the shorter specimen.[3] The width of the specimen has been pretty well standardized in the industry at 15 mm., so this width was used throughout.

Each machine is equipped with a device to indicate the elongation of the paper, as well as the breaking load. The elongations were noted, but are omitted from this report as irrelevant.

III. Method of Testing

Each machine was carefully examined to see that it was in satisfactory mechanical condition. It was properly lubricated and levelled. It was calibrated by the dead-weight method. In every case except D, it was found that the calibration error was small enough to be negligible. In type D there seemed to be a little starting friction, of indefinite amount, but after this had been overcome, the scale readings were as nearly accurate as those of the other types.

Seven papers representing a rather broad range of quality were selected for test. Two hundred forty specimens were cut from

[1] Associate Physicist.
[2] Junior Engineer, Bureau of Standards.
* Publication approved by the Director of the Bureau of Standards of the United States Department of Commerce, Washington, D. C.
[3] Houston, Effect of length and width of test specimen on the breaking strength and elongation of paper, Paper Trade Journal, March 23, 1923.

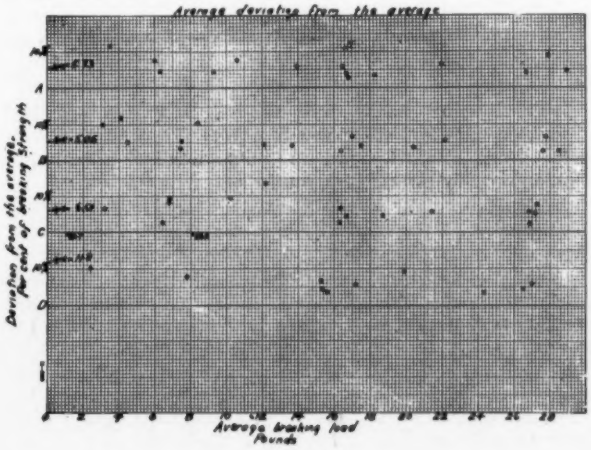

Average deviation from the average
Deviation from the average, per cent of breaking strength
Average breaking load
Pounds

FIG. 1

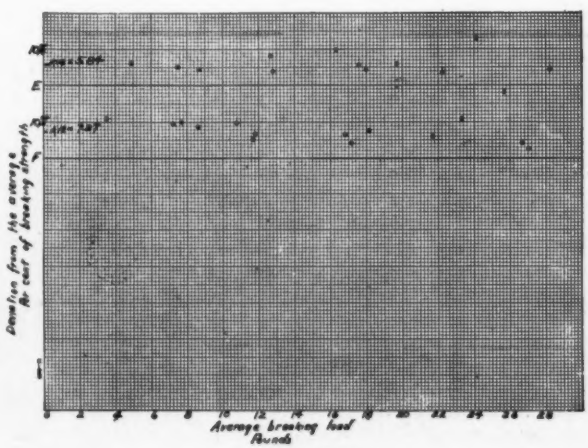


FIG 1 CONT.

each paper, so as to provide 40 specimens for each tester, 20 of which were cut in the machine direction and 20 in the cross direction. A description of the papers is given in table 1.

All specimens were exposed to an atmosphere of 65 per cent relative humidity and 70 degrees F. for at least two hours before testing. Two specimens of one sample were tested on one instrument, then two specimens of the same sample on the next instrument and so on. This "rotation of instruments" was practiced to equalize any change in the condition of the paper during test.

IV. Results

The average results are shown in Table 2

V. Discussion

Aside from such mechanical details as ruggedness of con-

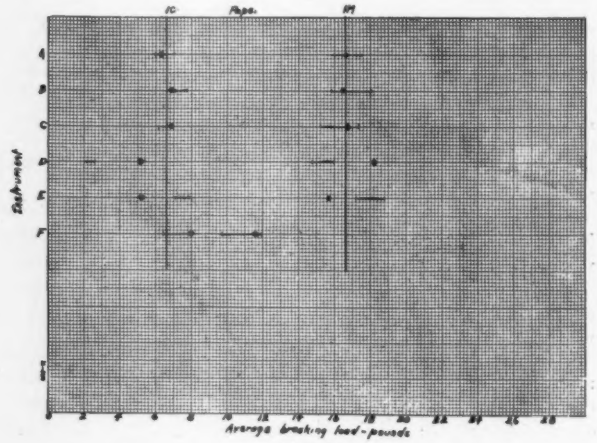


FIG. 2

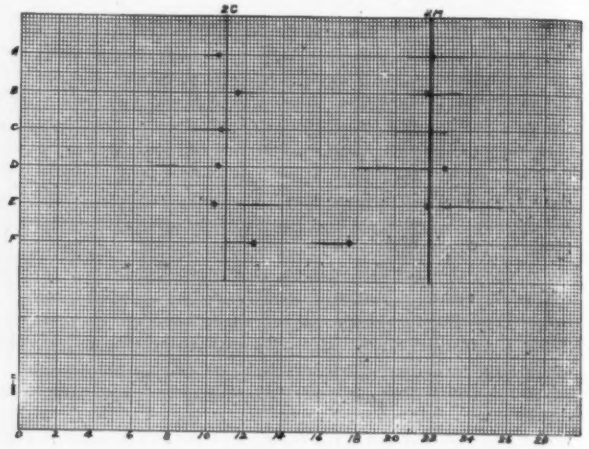


FIG. 2 CONT.

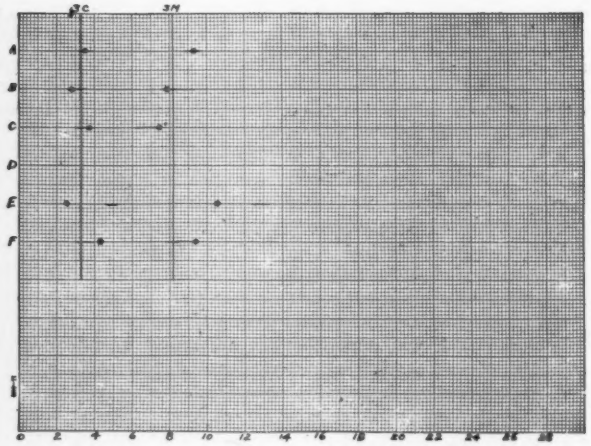


FIG. 2 CONT.

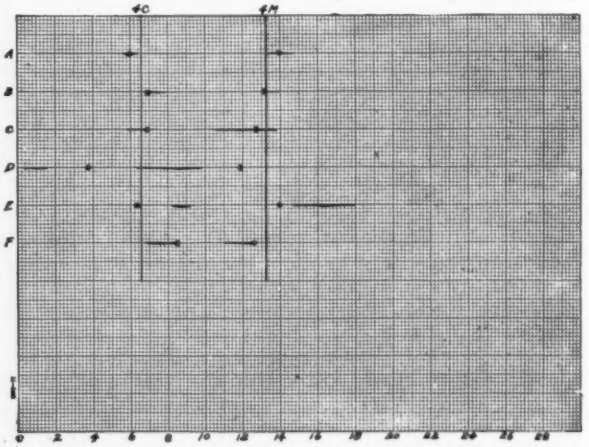


FIG. 2 CONT.

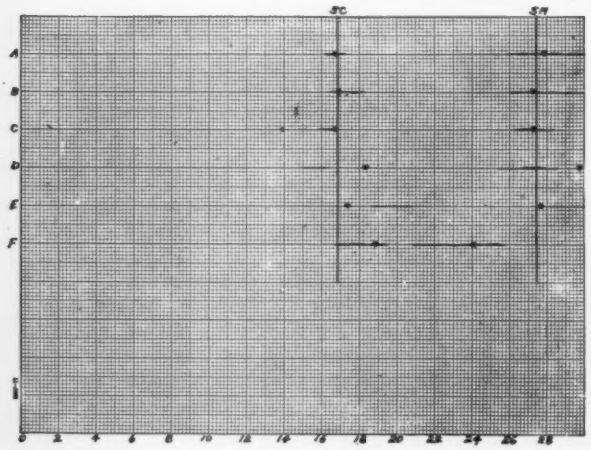


FIG. 2 CONT.

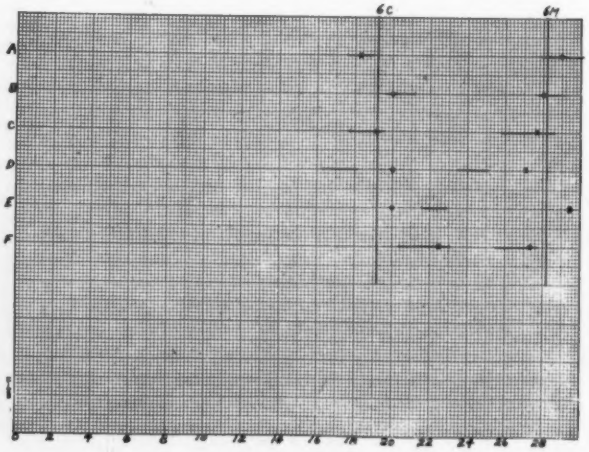


FIG. 2 CONT.

TABLE 1
PHYSICAL PROPERTIES OF PAPER SAMPLES

Sample No.	B. S. No.	Weight 25x40, 500 pounds	Kind of paper	Bursting strength, points	Thickness, inch	Folding endurance: Machine No. folds	Folding endurance: Cross No. folds	Fiber composition per cent
1	2961	55.9	Sulphite bond	33.6	0.0036	542	59	[1] Con. Bl. 100
2	2963	60.3	Kraft wrapping	59.3	.0040	2060	1570	Sulphate 100
3	2958	53.3	M. F. book	17.0	.0030	7	4	Con. Bl. 85; [2] Decid. Bl. 15
4	2885	57.8	Wood manila	23.2	.0041	13	7	Con. 40; [3] Grd. Wood 60
5	2959	84.3	Sulphite manila	68.1	.0053	2240	3650	Con. Unbl. 100
6	2957	89.7	Ledger	80.7	.0050	3600	3170	Rag 100
7	2883	82.1	Rope manila	68.7	.0058	843	865	Con. 20; [4] M. & J. 80

[1] Con. Bl.—Coniferous Bleached.
[2] Decid. Bl.—Deciduous Bleached.
[3] Grd. Wood—Ground Wood.
[4] M. & J.—Manila and Jute.

TABLE 2
TENSILE STRENGTH, POUNDS TOTAL LOAD AT BREAK, AVERAGE OF 20 SPECIMENS

Paper Number	Direction	Machine type A	B	C	D	E	F
1	Cross	6.3	7.4	6.4	2.4	7.5	7.2
	Machine	16.7	17.0	16.3	15.4	18.0	10.8
2	Cross	10.6	12.1	10.2	7.8	12.7	11.7
	Machine	22.0	22.2	21.4	19.9	24.1	16.8
3	Cross	3.5	3.3	3.2	...	4.9	3.5
	Machine	9.3	8.4	6.9	...	12.8	8.6
4	Cross	6.0	7.5	6.4	1.0	8.7	7.7
	Machine	14.0	13.7	12.2	8.1	16.3	11.8
5	Cross	16.8	17.5	16.3	15.6	19.7	18.1
	Machine	27.9	27.8	26.8	27.0	30.0	23.3
6	Cross	18.3	20.5	18.7	17.2	22.3	21.7
	Machine	29.0	28.5	27.2	24.3	31.8	26.5
7	Cross	16.5	16.4	16.7	15.3	17.7	17.1
	Machine	26.7	27.6	26.9	26.5	28.2	27.0

struction and ease of calibration, a good tensile tester should meet two requirements: (1) the results obtained by testing duplicate specimens of the same sample should check reasonably well; and (2) the average (checked) result should be reasonably near the truth.

The degree to which these instruments fulfill the first requirement can be ascertained by comparing the "average deviations from the average" of the results obtained. If each of the 20 results obtained for a given sample and machine be subtracted from the average of the 20, and the differences averaged without regard to sign, the result may be called the average deviation from the average. For a perfect machine and a homogeneous material, this average deviation would be zero: the 20 results would be identical. Since it is probable that an instrument might be more nearly accurate at one part of the scale than another, the deviations have been plotted against

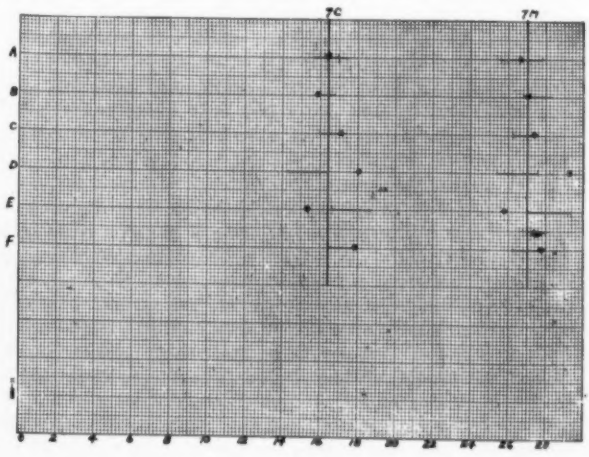


FIG. 2 CONT.

the average strengths in Fig. 1. Since the magnitude of the deviation is important only in its relation to the total load, the deviations have been plotted as percentages of the loads, rather than as pounds.

Fig. 1 shows that in so far as checking results is concerned, any one of these instruments except D is about as good as any other one, although there is some indication of a slight sacrifice of accuracy for portability in the design of type F. The strength of paper No. 3 was so low that it could not be measured on instrument D. On the same instrument, paper No. 4 showed an average deviation of 60.3 per cent in the cross direction and 22.3 per cent in the machine direction. The readings for the other papers seemed to be reproducible within reasonable limits. While the cross direction of No. 4 may have been below the range of the instrument, the machine direction was not. This high deviation can be explained only on the assumption that something went wrong with the instrument temporarily. This was not noted at the time, no attempt was made to fix it, and yet good results were obtained with other papers, both before and after paper No. 4. Such erratic behavior constitutes a just criticism of the serviceability of an instrument which is designed to be used by inexperienced operators.

Fig. 1 shows that the results can hardly be expected to check each other within about 5 per cent. This figure may be taken as a measure of the heterogeneity of the paper.

None of the instruments showed any appreciable change of accuracy in different parts of the scale, within the limits examined.

An instrument may give results which check each other closely, and yet all of the results may be far from the truth. To examine this point, the strengths as shown by the different instruments have been plotted in fig. 2. In this figure, the horizontal lines represent the spread between the strengths indicated when the average deviations from the average are considered positive and negative. The average strength is therefore the mid-point of the line. (This method was used rather than plotting the actual maximum and minimum strengths in order that one erratic point might not be given undue weight.) The meaning of the vertical lines will be explained later.

A study of fig. 2 indicates that instruments A, B, and C are fairly comparable. If anything, the results obtained with A and C tend to be a little lower than those obtained with B. Type D gives results which are quite generally low. Type E gives results which are uniformly high. Type F is quite erratic; the results are just as apt to be too high as they are to be too low or nearly right.

On the assumption that the average values obtained with A, B, and C (indicated by the vertical lines in Fig. 2) are correct, an attempt has been made to work out corrections for all of the instruments, in table 3. These corrections corroborate the statements made in the preceding paragraph, except that the results obtained with C are about as much lower than those obtained with A as those obtained with B are higher.

The corrected values are plotted as separate points on Fig. 2. Evidently the corrections did not do much good for instruments D, E, and F.

VI. Conclusions

Type A gives results which check each other with reasonable closeness, and the average result is in general a close approximation to the real strength of the paper.

With type B, the results check as closely as with type A, but the average is about half a pound high. This is probably due to the use of a shorter test specimen.

With type C, the results check as closely as with type A, but the average is about half a pound low. It is believed that this is due to a variation in testing speed, since C is a hand operated machine.

Type D is unsatisfactory. Paper No. 3 was too weak to give

any reading with this instrument. The results for paper No. 4 did not check within 22 per cent in the machine direction and 60 per cent in the cross direction. Results for other papers checked well enough, but the averages were too low, and not uniformly so.

Type E gives results which check each other as closely as types A, B, and C. The averages are uniformly too high. By subtracting about 2¼ pounds from the strength as found, the results will probably be correct within a pound or two, which is perhaps all that one need expect from a portable instrument.

Type F gives results which check each other fairly closely, but not so well as those from type E. The averages are frequently a little high, and occasionally a good deal too low. Under such conditions, no uniform correction can be applied. It is believed that the trouble with this instrument lies chiefly in the reducing gear between the pendulum and the pointer, and that this gear might well be omitted.

Seattle Paper Mill To Cost $1,500,000

[FROM OUR REGULAR CORRESPONDENT]

SEATTLE, Wash., May 31, 1928.—Erection of a $1,500,000 plant on the Duwamish River half a mile south of the city limits by the new Seattle Pulp and Paper Mills, Inc., was a step nearer last week.

Announcement was made by local interests that a working organization has been formed and that financing will be launched soon through the brokerage firm of Tom G. Taylor and Company, in the Dexter-Horton Building.

The company's officers include men well-known in the Northwest. Joseph Irving, of Everett, was elected president. He is president of the Crescent Logging Company, Sultan Railway and Timber Company and Monroe Logging Company.

E. K. Worthington, of Seattle, was elected treasurer. He is president of the Sioux Securities Company, Washington Tug and Barge Company, and Seattle Mortgage Loan Company.

Besides Irving and Worthington the directors are:

James R. Stirrat, president of the Independent Asphalt Paving Company and secretary-treasurer of the Stirrat-Goetz Investment Company.

Corwin S. Shank, of the law firm of Shank, Belt & Fairbrook.

Ralph H. Miller, president of the Mutual Paper Corporation and a director in the San Juan Pulp Manufacturing Company and Fidalgo Pulp Manufacturing Company.

Joseph Kaster, Sr., for twenty-five years superintendent of the Crown-Willamette Pulp and Paper Company, of Salem, Ore.

Allen B. Engle, associated with the Tom G. Taylor Company, was elected secretary.

Pointing out that the company has acquired a twenty-one-acre tract on the Duwamish River through John Davis and Company and obtained from the state perpetual rights to the use of 10,000,000 gallons of Duwamish River water daily, President Irving issued a brief statement yesterday:

"From the men named it can readily be seen our organization is complete and that it consists of men connected with the logging and lumbering industry for many years.

"They are thoroughly familiar with conditions regarding raw material, and include a paper maker of forty years' experience. The board includes men familiar with engineering and building and selling the finished product.

"We wish it understood that this mill will be adequately financed to do a big business in an absolutely safe way. It will be Seattle's first paper mill."

New Hercules Jordan Catalog

"Standardized Jordan Efficiency" is the title of a new booklet which describes the Hercules Jordan built by the Hermann Manufacturing Company, of Lancaster, Ohio, who will be glad to send copies to the trade upon request.

Setback for Forestry in Wisconsin

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., June 4, 1928.—Wisconsin's biggest step toward conservation of its forests which was announced as a completed project has had a setback which may cause a postponement of one year in the movement. The acquisition of 500,000 acres of wooded lands by the Federal government for a forest preserve was consummated too late for the regular meeting of the Federal forestry commission and therefore could not be approved. The commission will not have another meeting until December, and work on the project therefore may not be started until next summer. Attempts were made by Gov. Fred R. Zimmerman to arrange a special meeting of the commission, but L. F. Kneipp, assistant Federal forester, has announced that this cannot be done.

Indorsement was given all the way down the line from the counties in which the lands are located, until the matter reached the state land commission. Therefore the school loans secured by these lands in some districts became involved, and final decision was delayed until this matter could be adjusted. The action came too late for the Federal commission's meeting. It was the hope of the government to start clearing the lands this year so tree planting could be done next spring.

Paper mill owners, lumber interests and conservationists who have worked strenuously to effect a practical solution of the problem of fast dwindling forests were disappointed by the outcome of their work. They are not dismayed, however, and will continue their work to have further tree planting, fire prevention and other activities brought about that will help to assure a future pulp wood supply.

In line with a suggestion of the Wisconsin Department of Agriculture, a number of counties may go into the business of planting cutover lands with trees. At present fourteen counties have taken over tax certificates for land valued at approximately $2,500,000 where the owners failed to pay their taxes.

Under the new state law, lands devoted to tree growing are practically tax exempt until the timber is cut, when a severance tax is paid based on timber values at the time. A total of 400,000 acres can be accepted under this law during 1928, and yearly increases can be made until the total reaches 1,000,000 in 1934.

Counties are planning to transfer the small farms scattered in timber areas to consolidated sections and then set aside entire tax delinquency problem, because a large amount of this land never will be suitable for farming. Valuable pine and hardwood timber once thrived there, and the growing can be repeated.

Technical and Cost Men To Meet at Kalamazoo

KALAMAZOO, Mich., June 11, 1928.—Up in Michigan there are two hustling organizations—The Kalamazoo Valley Division of the Cost Association and the Paper Technologists Club. These organizations are up and doing all the time. Realizing that there are many, both members and non-members, who are unable to attend the annual meeting in New York, they are sponsoring a joint meeting to be held in Kalamazoo, June 22 and 23. Invitations are being mailed to cost and technical men in Wisconsin, Illinois, Indiana, Ohio and Michigan but any others interested will be warmly welcomed.

The program is all set and carries as speakers the names of prominent men in the industry, including R. G. MacDonald, secretary of the Technical Association of the Paper Industry, and T. J. Burke, secretary of the Cost Association. Registration for this meeting will begin at 10:00 a. m., Friday, and outside of transportation, meals and a bed to sleep on, there will be no expense to visitors. Sessions begin at 1:00 p. m. and continue through the banquet, Friday night. Saturday morning will be devoted to visiting mills, golf (no green fees will be charged), and educational sessions will occupy Saturday afternoon and evening with adjournment early enough to accommodate all who wish to catch evening trains.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

Machinery

Attachment for Paper Machine Driers. J. Schell and O. T. Paterson. U. S. pat. 1,634,159, June 28, 1927. The invention consists essentially of a substantially semi-circular plate adapted to be rigidly attached to the frame of the machine at the point where the bearings are secured thereto. The plate is formed with a substantially horseshoe sleeve on the inside, designed to register with the outer periphery of the end of the drier roll, so that when the rope-carrier for threading the paper through the machine is inclined to slip over the ends down into the journal and on to the bearings, they will be prevented from so doing by the sleeve of the attachment plate. The attachment thus automatically closes the gap between the end of the drier rolls and the frame of the machine, to act as a safety guide for the rope carriers.—A. P.-C.

Condensate Remover for Drier Rolls. J. Young. U. S. pat. 1,640,019, Aug. 23, 1927. A number of water-collecting troughs extend substantially the whole length of the cylinder. The troughs may be formed of sheet metal and are of substantially helical shape in cross section. One of the longitudinal edges is provided with an attaching flange which is bolted or screwed to the cylinder wall. The free longitudinal edge of the troughs lies inward from the attaching flange, so as to form means for preventing the dripping of the water from out of the troughs as they collect water. The troughs all gradually increase in diameter toward the hollow trunnion through which steam is introduced into the drier and which carries the condensate outlet pipe ending in a funnel into which the troughs discharge the collected water. The narrow ends of the troughs are preferably entirely closed by end walls, while the large ends can be partially closed by semi-circular end walls.—A. P.-C.

Steam-Circulating System for Paper Machine Driers. J. O. Woodsome. U. S. pats, 1,643,972 and 1,643,973, Oct. 4, 1927. *No. 1,643,972.* The steam pipe leading from the steam header to the inlet trunnion of the drier is provided with a jet compressor of the venturi type by means of which the exhaust steam used for heating the driers is introduced at a high velocity through the use of a small quantity of live steam. The outlet is provided with a nozzle separator to facilitate separation of the steam from the condensate. In order to prevent the building up of a back pressure within the drain header equal to or greater than the pressure in the supply header, an equalizing line is provided joining the two headers and provided with a check valve, to prevent steam from flowing from the supply to the drain header. *No. 1,643,*TGC—Between the steam inlet trunnion of the drier and the venturi nozzle specified in the previous patent, a second nozzle is provided which is connected to the nozzle separator of the drain pipe from the drier, the connection being made at a point slightly above the orifice of the nozzle. In this way the condensate is allowed to flow out to the drain header, while the steam removed from the drier is immediately reintroduced, and the vacuum caused by the action of the second venturi nozzle in the steam inlet pipe still further accelerates the steam-circulation in the drier.—A. P.-C.

Vapor Removal in Paper Machine Drying. H. W. Cowan. Pulp and Paper 25, 1127-1130 (Sept. 8, 1927). Calculations are given showing the economy of drying with air at a high temperature (210 degrees F.) instead of low temperature (150 degrees F.). The Cowan process of ventilation for paper machine rooms is based on the utilization of direct recovery of vapor heat and cooling the machine room by effective ventilation through the drier. A false ceiling is placed in the existing hood, which is divided into two triangular passages by a vertical partition to form two ducts, one of which is used for exhausting the vapor and the other for passing heated air into the drier section. Both ducts are connected to risers which lead to the equipment located on the roof. At each end of the driers light screens, moveable longitudinally, are provided to prevent leakage of air into or out of the drier section. A double wall screen forming an exhaust duct connected to the exhaust duct in the hood, is placed at the rear of the machine at a distance allowing free entry to the steam glands and lubricating cups. The inner side of the screen is supplied with exhaust ports opposite the pockets between the rolls. The screen is suitably counterpoised for convenience in raising and lowering. The exhaust vapor is drawn up through the ports and riser into an air conditioning chamber before entering the fan inlet. Conditioning is brought about by adding cold air in winter, or using cold sprays of water in summer, obtaining a constant temperature in the air going to the fan. Reduction of summer temperature keeps the air volume down and pays for the water used in cooling. The heated air riser is supplied with branches to connect the heating duct system in use should heat be required when the machines are not running. Calculations are given showing the heat economy which can be obtained with this system.—A. P.-C.

Paper Machine Reel. V. Okuura. Fr. Pat. 622,794. The reel comprises a suitable number (preferably six) of hollow, perforated winding-shafts mounted on a rotating frame. Each shaft is directly driven by an induction motor, and is connected to a suction device so as to make the paper adhere to the shaft when a new roll is being started. All motors receive their current from common mains, and their rotors are connected to the stators of two other induction motors whch cooperate with the winding motors to keep the tension of the sheet between the calenders and reel constant. The central shaft of the frame on which the winding shafts and motors are mounted is driven by a motor which automatically operates intermittently to bring the next winding shaft into position when one roll has been finished.—A. P.-C.

Paper Calender. H. G. Cram assignor to Great Northern Paper Co. U. S. pat. 1,629,681, May 24, 1927. A blast is provided to detach the paper from the roll to which it may tend to adhere and a guide plate to guide the sheet around the lower roll. Further air blasts are also provided to force the paper through the guides.—A. P.-C.

Core-Tip-Removing Machine. E. Larbalester assignor to Fort William Paper Co. U. S. pat. 1,633,593, June 28, 1927. The core is placed in a suitable supporting frame and an automatic gauge is provided for adjusting its position. The removing device is attached to the end of a piston rod, and is advanced to engage the end of the core, the same time automatically retracting the gauge to prevent its being fouled. A series of pins grip the end of the core about its circumference and the end-removing device is pulled back, the gauge being automatically re-set for adjusting the position of the next core.—A. P.-C.

Special Papers

Reducing Costs and Increasing Efficiency in the News Print Paper Industry. George D. Bearce, Paper Trade J. 85, No. 4, 47-51 (July 28, 1927). A discussion of the factors which have enabled the North American news print industry to arrive at its present high state of efficiency and low cost production, particularly of control of operations by means of proper operating reports and of exchange of operation data amongst the mills through the News Print Service Bureau.—A. P.-C.

Manufacture of Thin Wrapping Papers. G. Oddon. Papier 30, 873,879 (Aug. 1927). Description of the manufacture of various grades of thin wrapping papers, particularly those used for foodstuffs.—A. P.-C.

Offset Printing Papers. S. W. Green. Paper Mill 50, No. 33, 16, 40 (Aug. 13, 1927). A discussion of the requirements ror offset printing papers and of difficulties encountered with them.—A. P.-C.

Composition Board and Process of Making the Same. F. J. Hallauer. U. S. pat. 1,634,462, (July 5, 1927). Long, slender, curly shavings of natural wood are formed into an even layer of tangled, open masses, and sprayed with a fire-resistant and water-resistant protein glue so that the shavings are lightly coated therewith. The sprayed layers are then folded into a roll or bundle, heavily pressed into a board in such a manner that the shavings are forced to lie substantially in the plane of the board, and dried.

Industrial Applications of Paper Products. G. Oehler. Z. Ver. Deut. Ing. 71, 545,-552 (April 23, 1927); Paper Industry 9, 795-799 (Aug. 1927). Data are given on the mechanical properties and machining properties of products such as resin-impregnated paper and boards, pressed boards and pasteboard.—A. P.-C.

Vegetable Parchment. Some Curious Phenomena. James Scott. Paper Maker and Brit. Paper Trade J. 74, 155-6 (Aug. 1, 1927). Brief description of the preparation and properties of vegetable parchment or "transparent paper," of the differentiation between vegetable parchments from cotton and from wood sulphite, and of the microscopical appearance of parchment prepared by increasingly drastic treatment with sulphuric acid.—A. P.-C.

Bituminous Waterproof and Roofing Materials. Anon. Paper Trade J. 85, No. 9, 53-56 (Sept. 1, 1927). Report of the A. S. T. M. committee on specifications for and testing of these materials. The dot count method of determination of the fiber furnish is considered fairly satisfactory. The technic of the method is described.—A. P.-C.

Warping of Binders' Board. Leigh H. Davey. World's Paper Trade Rev. 88, 418, 420 (Aug. 5, 1927). The warping of the boards used for book covers is attributed by manufacturers to the fact that orders for boards often demand delivery within a time too short to allow of proper seasoning of the boards. By standardizing sizes to about 10 or 12, the manufacturers would be able to execute orders from stock and warping troubles due to "green" board would be practically done away with.—A. P.-C.

Wall Board from Wood Waste. H. F. Weiss assignor to Wood Conversion Co. U. S. pat. 1,631,170 to 1,631,172, (June 7, 1927). *No. 1,631,170*—Small wood fibers are disintegrated to form a gelatinous mass; this is incorporated with wood or other fibrous filler and the mixture is pressed and dried. *No. 1,631,171*—Lignocellulose is disintegrated in hot water until at least 25% of the mass by dry weight has been reduced to a structurless gelatinous mass whch may be formed into sheets. *No. 1,631,172*—Wall board binder is prepared by chipping saw mill refuse, crushing and rolling the chips until they are reduced to small particles, waterlogging the particles and then mechanically disintegrating them until at least 25% of the dry weight of the wood has been reduced to a structureless gelatinous mass.—A. P.-C.

Boards for Shoe Stiffeners, Etc. H. P. Shopneck. Eng. pat. 269,220. A water laid felt, either as such or saturated with gums or resins, which may be used in the manufacture of box toes and insole parts of shoes, or for roofing base, floor base or linoleum backing, comprises a body of short felted fiber, such as rags, or a mixture of rags, and wood pulp, to which are added long vegetable fibers such as jute, manila, hemp or sisal. The short felted stock of rags, etc., is beaten out until smooth. To this is added the long vegetable fibers and the mixture is beaten and run on a cylinder machine. When the felt is used for box toes, it is impregnated, when dry, with a thermoplastic binder such as rosin and oil-blown asphalt. A satisfactory felt contains 30% jute, etc., and 70% rag or other fibrous stock; 20% asbestos may be used to replace a similar quantity of rag stock.—A. P.-C.

Stencil Sheet. A. B. Davis, assignor to A. B. Dick Co. U. S. pat. 1,633,696, June 28, 1927. A porous sheet is coated with a composition containing pectin.—A. P.-C.

Paper Coating Machine. C. C. Colbert and G. E. Preston assignors to American Coating Mills. U. S. pat. 1,632,885, June 21, 1927. The driving means for the reciprocating brushes which spread the coating after it has been applied are independent of the driving means for the large roll against which the paper is coated and the rotary brush which supplies the coating, so that the speeds of the reciprocating brushes on the one hand and of the roll and rotary brush on the other may be adjusted independently. The coating machine draws the paper or board from a source of supply (E.g., a festoon drier) in front of the machine, and the coated board is discharged from the top side of the cylinder toward the rear in the same general direction as the incoming board. This is obtained by running the incoming board under the machine cylinder and thence reversely under and around the front side of the cylinder and off from its top side. Before passing down under the floor of the plant, the board is passed over a stationary curved guide which, together with the guide rolls, places the board under sufficient tension to eliminate any slack. If desired, this dragging action may be further increased by spreading a sheet of felt, etc., over the curved guide.—A. P.-C.

Coated Paper. G. W. Johnson. Eng. pat. 267,013. In the production of coated paper which has a "laid" appearance and at the same time a smooth and even surface suitable for printing half tones thereon, any suitable base having a light color is first coated on both sides with a water-soluble ground coat or enamel, such as casein or glue containing satin white, or clay with the usual pigment or coloring matter. Series of lines imitating laid paper are then printed or otherwise applied while the body ground is still moist to soften the lines, which should coincide as nearly as possible on the two sides of the sheet and another coating may be applied while the first coating is still damp or even after drying, and the surface is then smoothed and polished as by calendering.—A. P.-C.

Preparation of Stencil Sheet. D. Gestetner. Eng. pat. 255,-361. A coated sheet made of porous material is treated with a reagent such as sulphuric acid, which softens the coating or even changes its character so that, by subsequent treatment, part of the coating can be removed. To prevent the reagent from spreading an absorbent sheet is placed under the coated sheet.. A mixture of glucose and glycerin can be used as water-soluble adhesive, and gum-elemi, Canada balsam, polymerized oils or waxes may be used as insoluble adhesive. The supporting sheet can be impregnated with lanolin or other product to render it transparent or translucent. Materials such as kieselguhr kaolin, bentonite, zinc oxide or lithopone can be added to the ink-impermeable coating. For example, Yoshimo paper is coated on one side with an ink-impermeable composition consisting of gelatin, water, aluminum sulphate, glycerin, potassium oleate, kaolin and titanium white, and on the back of the sheet there is applied an adhesive consisting of rosin oil wax, Canada balsam, paraffin, titanium white and magnesium oxide.—A. P.-C.

Waterproofing and Hardening Paper by Means of Aluminum Acetate. A Lambretta. Papeterie 48, 666 (July 25, 1926); Paper Trade J. 85, No. 5, 57-58 (Aug. 4, 1928); World's Paper Trade Rev. 88, 826 (Sept. 9, 1927); Paper Makers Monthly J. 65, 362-363 (Sept. 15, 1927). By impregnating with aluminum acetate solution and then drying at a low temperature, the acetic acid is driven off and the hydrated alumina remains as a somewhat gelatinous, coherent film, which waterproofs and hardens the paper. At higher temperatures the alumina is completely dehydrated and becomes purverulent.—A. P.-C.

Oil and Grease-Proof Paper. O. Kress assignor to American Lakes Paper Co. U. S. pat. 1,633,787, (June 28, 1927). A non-drying cement insoluble in oil, carrying sufficient water to prevent the passage of oil, is interposed between two sheets of paper to unite them.—A. P.-C.

Paper Business Fairly Satisfactory in Chicago

Position of Local Market Little Changed Although Trading Was Affected Last Week by Inclement Weather—News Print Outlook for Immediate Future Encouraging—Keen Competition for Fine Paper Orders—Wrapping Paper Moving in Good Volume

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 11, 1928.—A rainy week has kept the Chicago paper market in about the same position as last week, with some lines continuing in strength and others barely holding their own over last year. News print continues to be in fair shape with reports somewhat bright over the immediate future in this line. The fine paper market is fair, with prices unchanged, competition keen and business reported stable. Wrapping paper continues on its way in good shape with a steady demand reported in all lines. A number of weeks of good business in the wrapping paper field are confidently looked forward to by Chicago paper men. Book remains the same as last week, in fair demand with prices unchanged. The board market is going along in fine shape with the demand in every grade reported strong and decidedly encouraging.

Noteworthy in reports for the week is the outlook for a greatly increased volume of direct mail business in Chicago following the passage of postal bill H.R. 12030, becoming effective July 1. With postal cards and private mailing cards back to the one cent rate, mail order and direct mail inquiries will assume a more important position in advertising plans.

Other reductions were important though somewhat disappointing but the first class mail changes have started a brisk sales effort among Chicago direct mail houses. This effort will undoubtedly affect the volume of paper used here as in other parts of the country. One of the first results of the new law came out of the office of Buckley, Dement & Co. of which Homer Buckley, president of the National Council of Direct Mail Users, is the head. It was in the form of a letter, dated June 5, in which the organization pointed out to its clients the many economies to be effected by the new Postal Rate Bill. It states that "in planning any printed matter for mailing after July 1 the client will want to have it prepared in a manner to take full advantage of the new provisions." This sort of sales effort is undoubtedly being followed by other direct mail houses and paper firms are confidently looking forward to a greatly improved sales volume as a result.

News Print Vessel for Local Daily

The *Chicago Tribune* has recently completed steps to have its own news print transported to its door through the medium of a lake vessel built especially for the big Chicago daily. A current publication of the Bureau of Foreign and Domestic Commerce on "Paper and Paper Products in Canada" reports that the largest single item of paper production in Canada is news print which amounts to over 80 per cent of the total. It is from this source that the *Tribune* gets its news print supply, now to be transported to the back door of the immense *Tribune* plant in Chicago by means of a lake vessel. It is a decided step in the right way.

"Rags" Distributed in Chicago

The second issue of "Rags" an interesting little paper published by the Rag Content Paper Manufacturers and sponsored by the thirty members of the group is now making the rounds of Chicago offices. It contains a brief history of paper making and states that future issues of "Rags" will contain occasional examples of letter heads, advertising pieces, book pages and other specimens to suggest the possibilities of modern design in combination with good paper. A mighty good sales talk is given in an interesting way.

Chicago Paper Association to Meet

The Chicago Paper Association will hold its next meeting on Tuesday, June 12, at the Bismarck Hotel. The meeting will be in the form of a "New Member Night," for at that time the progressive coarse paper association will receive six new member firms into the already rapidly growing list. The prospective enlargement of the membership list is undoubtedly the result of the last meeting—at which the Association invited non-members and carefully explained to them the efforts the Chicago Paper Association was making to better conditions in this market. The plan, as outlined, must have appealed to a good percentage of those present, as witnessed by the popularity of "New Member Night."

To Build 248-In. Machine for Crown-Zellerbach

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., June 11, 1928.—The Crown-Zellerbach Corporation, with offices in San Francisco, has just contracted with the Bagley & Sewall Company, of Watertown, for one of the largest kraft papermaking machines ever turned out in Northern New York. The Crown-Zellerbach Corporation is a recent consolidation of the Crown Willamette Paper Company and the Zellerbach interests, two of the largest mill operators on the Pacific Coast.

The machine ordered is of the latest design high speed type built especially for the manufacture of kraft paper. It will have a wire width of 248 inches. There will be 44 x 60 inch diameter paper driers in addition to the proper number of felt driers. The Fourdrinier will be of the quick removable type, all details being of the latest and most approved design. The machine will have three suction rolls, the Bagley & Sewall calender reel, winder and slitter. The drivers will be the sectional electric.

Contract calls for the delivery to be made during the fall by ocean transport through the Panama Canal. The machine will be erected in the Port Townsend mill on Puget Sound, a new development of the Crown-Zellerbach Corporation. The construction and equipment of this mill are in the hands of V. D. Simons, construction engineer of Chicago.

The Crown-Zellerbach order together with the orders for other machines now on hand will require capacity operations at the Bagley & Sewall plant for the remainder of the year. The other orders include a large news print machine for one of the Canadian mills of the Backus-Brooks Company.

Paper Firm Buys Back Astoria Property

[FROM OUR REGULAR CORRESPONDENT]

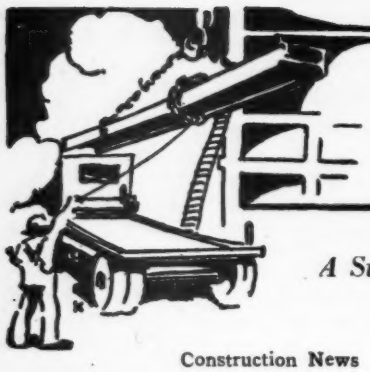
PORTLAND, Ore., June 6, 1928.—The city of Astoria, Ore., has sold all properties belonging to the Astoria Box and Paper Company, located in the city limits, back to the concern for $36,000, the amount of taxes due on the property, according to report made May 29. The city recently foreclosed upon the properties for approximately $120,000 in delinquent improvement liens.

Officials of the company state that they plan to continue operation of the saw mill box factory and that they have plans under way for the financing of a 50-ton pulp mill in connection with their other operations.

Estate of Edward A. Jones

[FROM OUR REGULAR CORRESPONDENT]

PITTSFIELD, Mass., June 11, 1928.—The inventory in the estate of the late Edward A. Jones of this city has been filed and shows personal estate of $1,677,367 and no real estate. Among the holdings are 600 shares E. D. Jones & Co. preferred, $72,000; 476 shares E. D. Jones & Co. common, $171,360; and 200 shares Keith Paper Company, $25,000.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Rhinelander, Wis.—The Rhinelander Paper Company has begun excavations for its proposed new mill addition, and will begin superstructure at an early date. Work will consist of a new finishing room, and new power plant. Considerable additional equipment will be installed including paper-making machine. Entire project is reported to cost more than $250,000, with machinery. General contract recently was let to the C. R. Meyer & Son Company, 50 State Street, Oshkosh, Wis. Structural steel work will be handled by the Vulcan Manufacturing Company, Fond du Lac, Wis. Other awards for roofing, sash, plumbing, heating, etc., will be let in near future. A. W. Brown is president.

Beloit, Wis.—The Beloit Box Board Company, Second Street, has approved plans for construction of a new addition to its plant, to be two-story, 105 x 110 feet, and will proceed with erection by day labor. It is reported to cost about $25,000 with equipment.

Scotia, Cal.—The Pacific Lumber Company, Scotia, has secured permission from the State Department of Public Works to use waters from the Eel River, in Humboldt County, for power and industrial service, and company will soon proceed with plans for a proposed pulp and paper mill in conjunction with water rights. The initial plant will be equipped for a capacity of 150 tons per day, using waste material from company lumber mills for pulp production. Entire project is reported to cost more than $2,000,000, and is scheduled for completion within one year.

Chicago, Ill.—In connection with its general expansion program, recently announced, the Container Corporation of America 111 West Washington street, is disposing of a bond issue of $6,000,000, a portion of the proceeds to be used for acquisition of the local mill of the Chicago Coated Board Company, a subsidiary of the Robert Gair Company, for which arrangements were recently made. This will make the thirteenth mill of the company devoted to the production of corrugated paper boxes and containers, boxboard, etc. All plants will be continued in service and developments carried out. Walter P. Paepcke, is president.

Philadelphia, Pa.—Adams & Spangler, Inc., care of D. J. Spangler, 1421 North Redfield street, recently organized by Mr. Spangler, J. Frank Adams, Jr., and associates, plans the operation of a local plant for the manufacture of paper boxes and containers. It is proposed to begin work at early date. Mr. Spangler will be treasurer; C. J. Adams, 860 East Rittenhouse street, is also interested in the company.

Chicago, Ill.—The Stein Paper Box Company is arranging to ask bids at early date for a proposed new plant unit at Arthington and Tripp Avenues, to be one-story, 75 x 125 feet, reported to cost about $30,000, with equipment. Cobb & Eisenberg, 5 North LaSalle Street, are architects in charge, and estimates will be received at that office.

Tuscaloosa, Ala.—The E-Z Opener Bag Company, Decatur, Ill., has awarded general building contract to the C. A. D. Bayley Company, New Orleans, La., for initial units for its proposed new mill near Tuscaloosa; an award for structural steel has been let to the Ingalls Iron Works Company, Birmingham. The main plant will consist of three individual units, each three-story high. Plant will comprise kraft paper-making unit, with pulp division, and bag manufacturing plant; it will include a power house, machine shop and auxiliary mechanical buildings. Entire project is reported to cost more than $3,000,000, with machinery. The initial buildings are scheduled to be ready for equipment installations in the fall. William E. Spink, New Orleans, is company engineer.

Nekoosa, Wis.—The Nekoosa-Edwards Paper Company has decided to proceed with construction of its proposed plant additions by day labor, and is scheduling work to begin about July 1. As the project progresses, the company will be in the market for material, supplies, etc. The expansion will consist of a main one-story unit, 85 x 200 feet, and two-story addition for finishing department, wet room, recovery room, alkali and other departments. E. P. Gleason is company engineer, in charge. J. E. Alexander is general manager.

Rochester, N. Y.—The Charles Irwin Company, care of Albert H. Stearns, 105 Merriman street, Rochester, recently organized by L. H. Irwin, Mr. Stearns, and associates, plans operation of local plant for production and distribution of paper containers and kindred products.

Lockport, N. Y.—The Republic Asbestos Board Corporation, manufacturer of wallboard products, is planning a general expansion and betterment program with installation of considerable additional equipment for increased output. Arrangements have been made for the sale of a preferred stock issue to approximate $800,000, a portion of proceeds to be used for purpose noted, including addition in working capital. Archibald W. Jack is president.

Red Lion, Pa.—The Red Lion Carton Company has approved plans for the construction of a new local factory for the manufacture of paper boxes and containers, to be two-story, 80 x 200 feet, on site fronting on the Western Maryland Railroad. It is reported to cost close to $25,000, with equipment. The company has been operating locally in smaller quarters and will remove present works to new location, providing considerable additional equipment.

Baltimore, Md.—The Platt Paper Products Corporation has been organized to operate a local plant at the Key Highway and Boyle street, for the manufacture of a general line of paper goods. James B. Platt heads the company.

New York, N. Y.—The Amtorg Trading Corporation, 165 Broadway, official buying agency for the Soviet Russian Government, has information regarding paper mill project of the Central Paper Trust, now in progress near Balakhna on the Volga River, in the Nijni-Novgorod district. The plant is scheduled for completion late in 1929 or early in 1930; the mills will be equipped for an annual output of about 70 tons of finished stock, including 50,000 tons of newsprint, and 5,000 tons of wrapping papers. A cellulose division will be arranged for a rated capacity of 50,000 tons per year.

New York Trade Jottings

R. W. Leeper, manager of the pulp and paper section, apparatus sales department, of the Canadian General Electric Company, Ltd., Toronto, Canada, was a prominent New York visitor last week.

* * *

The St. Regis Paper Company announces the removal of their offices to the new building of the Equitable Trust Company at 15 Broad street, New York. The telephone number is Hanover 0930.

* * *

Ronald G. Macdonald, secretary of TAPPI, is in Washington this week attending the meeting of the Technical Association Paper Testing Committee which is meeting at the Bureau of Standards for the purpose of planning the year's work.

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Abitibi Power and Paper Company has called for redemption July 2 at 105 its outstanding general mortgage twenty-year 6 per cent bonds of 1940 and also the first mortgage 6 per cent bonds of the Abitibi Fibre Company for redemption August 1 at 104½.

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John Folke Ohlson, who has been acting as chemist for the Cornell Wood Products Company, will sail from New York aboard the White Star liner *Homeric* next Saturday for England. Mr. Ohlson plans to visit mills in Great Britain, Sweden, Norway, Finland, France, Germany and Holland and will represent the Technical Association of the Paper Industry as a Scandinavian-American Fellow.

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Yoskikuni Seki, chief engineer of the Mitsubishi Paper Mills, Ltd., Tokyo, Japan, was among the trade visitors in New York last week. Mr. Seki has spent a month visiting the book and fine paper mills in the middle west and will spend two more months in this country among the mills of the east, after which he will leave for Europe where he will inspect paper mills in England, France, Germany and Italy. He will have made a complete tour of the world when he arrives back at Tokyo. The Mitsubishi Paper Mills have fourteen paper machines and manufacture book and sulphite papers.

* * *

Regarding the marking of shipments of waste paper, H. F. Masman, manager of the Traffic Department of the National Association of Waste Material Dealers, Inc., writes in the traffic Bulletin as follows: "It recently has come to our attention that there are mix-ups in shipments when one packer delivers two different grades or two lots intended for different destinations or where two packers are loading shipments on the same lighter at New York. In order to avoid the mixing up of shipments of this character we are calling members' attention to the necessity of distinguishing grades by separate marks and also clearly marking shipments that are intended for different consignees. This department recently had called to its attention a mixup of four cars to different destinations which will probably cause considerable trouble getting the matter adjusted and the shipper may lose an account because the railroad people could not distinguish between different grades of waste paper and sent the wrong material to one of the consignees. From a transportation standpoint, waste paper is waste paper and packers should take protective measures to avoid mixups which will then enable them to place the blame on the carriers. Marks should also be shown in the body of bills of lading."

* * *

The Gibbs-Brower Company, of 261 Broadway, New York, have been appointed sole selling agents of the Flather Manufacturing Company, of Nashua, New Hampshire. This news is of great interest to the paper industry, as both of these concerns are well known and have been recognized as high-standing for many years. The proprietor and general manager of the Flather company is Edwin Morey—a popular, public-spirited citizen of Nashua—who has been building special waxing, oiling, coating and saturating machinery for a long time, and has gathered a world of valuable and practical experience. Only recently, however, he decided to place his superior machinery on the market in order to give the trade, as a whole, an opportunity to secure his really wonderful machines. With this aim in view he secured the services of the Gibbs-Brower Company, Inc., who have, since the beginning, successfully sold a full line of equipment to the waxed paper trade and allied industries all over the United States and Canada. It is claimed by Mr. Morey and his new agents that they are prepared to furnish a superior type of machine of this character, both as to workmanship, speed, production and finish on material, and best of all at a reasonable price.

Forest Service Research Conference

MADISON, Wis., June 11, 1928—Representing the principal western district offices and experiment stations and the main office at Washington, D. C., executives of the U. S. Forest Service gathered at the Forest Products Laboratory, Madison, Wis., June 4 for their annual research conference.

The purpose of this yearly conference is to consider and map out the wood utilization investigations to be conducted by the laboratory during the ensuing year. Many of these studies embrace forest management and silvicultural practices as well as problems having to do with the mechanical, physical, and chemical properties of wood; and an increasing number of those applying to milling and manufacturing are carried on jointly with the research officers in the various national forest districts.

The federal appropriation for the work of the laboratory during the coming year is $500,000, the sum on which it has operated for a number of years. The McSweeney Act, passed at the recent session of Congress, which authorized extended research in forestry problems but did not provide additional appropriations for such work, will not affect the research program of the laboratory for the fiscal year beginning July 1.

Those who participated in the research program conference besides laboratory officials included Earle H. Clapp, assistant forester in charge of research, H. S. Betts, and R. E. Marsh, Washington, D. C.; E. I. Kotok, director, and C. L. Hill, forester, California Forest Experiment Station, Berkeley, Cal.; C. M. Granger, district forester, and W. H. Gibbons, in charge of forest products, Portland, Ore.; M. I. Bradner, chief of forest products, Missoula, Mont.; Col. Allen S. Peck, district forester, and E. W. Tinker, assistant district forester, Denver, Col.

Salesmen Arrange Another Color Luncheon

In response to requests from a number of the members who heard Arthur S. Allen speak on Color at the June 4th luncheon of the New York Division of the Salesmen's Association of the Paper Industry, arrangements have been made for a second talk from Mr. Allen at the luncheon on June 18.

It was impossible for Mr. Allen to condense his talk into the time available at the luncheon so as to give as much attention to the practical applications of his work as the members desired. At the June 18th luncheon he will pick up his topic at the point at which he dropped it on June 4th, and in doing so will get into a field of direct value to the mill salesman.

Mr. Allen will have a different set of exhibits to illustrate his talk covering such points as the effect of the same ink on different types of paper and of different inks on the same paper.

Curtis Purchases Hoists for Paper Warehouse

The American Engineering Company announces that the Curtis Publishing Company, of Philadelphia, has purchased ten Lo-Hed Electric Hoists for installation in its paper warehouse.

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JUNE 9, 1928

SUMMARY

Cigarette paper	2,071 cs.
Wall paper	96 bls., 41 cs.
Paper hangings	13 bls., 19 cs.
Wall board	32 cs.
News print	230 rolls
Printing paper	53 rolls, 52 bls., 305 cs.
Wrapping paper	14 cs.
Packing paper	51 cs.
Trunk paper	2 cs.
Parchment paper	21 bls.
Stencil paper and ink	83 cs.
Drawing paper	45 cs.
Filter paper	66 bls., 6 cs.
Gallic paper	4 cs.
Tissue paper	19 cs.
Pergamyn paper	27 cs.
Bristol boards	5 cs.
Surface coated paper	90 cs.
Gold coated paper	8 cs.
Transfer paper	25 cs.
Photo paper	1 cs.
Decalcomania paper	36 cs.
Writing paper	30 cs.
Carbon paper	2 cs.
Oil pack paper	8 bls.
Press boards	25 cs.
Straw boards	380 rolls
Miscellaneous paper	102 bls., 235 cs.

CIGARETTE PAPER

De Manduit Paper Corp., Collamer, St. Nazaire, 772 cs.

American Tobacco Co., Collamer, Bordeaux, 1,299 cs.

WALL PAPER

A. C. Dodman, Jr., Inc., Berengaria, Southampton, 2 bls., 1 cs.

R. F. Downing & Co., Deutschland, Hamburg, 1 ble., 1 cs.

Bendix Paper Co., Deutschland, Hamburg, 5 cs.

Globe Shipping Co., Deutschland, Hamburg, 18 bls.

F. Blank & Co., Deutschland, Hamburg, 16 cs.

G. J. Hunken & Co., Columbus, Bremen, 5 bls.

W. H. S. Lloyd & Co., American Trader, London, 19 bls., 11 cs.

A. C. Dodman, Jr., Inc., American Trader, London, 3 bls.

R. F. Downing & Co., Minnekahda, London, 3 bls., 1 cs.

Importers Freight Service, Inc., Gripsholm, Gothenburg, 3 bls.

W. H. S. Lloyd & Co., Laconia, Liverpool, 42 bls.

Thomas & Pierson, Mauretania, Southampton, 1 cs.

American Express Co., Mauretania, Southampton, 1 cs.

Titan Shipping Co., Mauretania, Southampton, 4 cs.

PAPER HANGINGS

Whiting & Patterson Co., Inc., Berengaria, Southampton, 3 cs.

Whiting & Patterson Co., Inc., Caronia, London, 16 cs.

A. C. Dodman, Jr., Inc., Adriatic, Liverpool, 12 bls.

A. C. Dodman, Jr., Inc., Laconia, Liverpool, 1 ble.

WALL BOARD

O. M. Baxter, Gripsholm, Gothenburg, 32 cs.

NEWS PRINT

Parsons & Whittemore, Inc., Karlsruhe, Bremen, 130 rolls.

A. S. Zabriskie, Pres. Roosevelt, Bremen, 100 rolls.

PRINTING PAPER

P. C. Zuhlke, Belgenland, Antwerp, 48 cs.

C. Steiner, Belgenland, Antwerp, 5 cs.

Keuffel & Esser Co., Deutschland, Hamburg, 53 rolls.

Guaranty Trust Co., Deutschland, Hamburg, 87 cs.

E. Dietzgen & Co., Volendam, Rotterdam, 108 cs.

Kupfer Bros., Volendam, Rotterdam, 14 cs.

Sebastian Bienfang, Volendam, Rotterdam, 43 cs.

Walker, Goulard, Plehn Co., Tergestea, Trieste, 3 bls.

Guaranty Trust Co., Thuringia, Hamburg, 49 bls.

WRAPPING PAPER

C. Steiner, Thuringia, Hamburg, 12 cs.

Paper Service Co., Laconia, Liverpool, 2 cs.

PACKING PAPER

Haule Wax Paper Manfg. Co., Deutschland, Hamburg, 51 cs.

TRUNK PAPER

P. H. Petry & Co., Deutschland, Hamburg, 2 cs.

PARCHMENT PAPER

Walker, Goulard, Plehn Co., Thuringia, Hamburg, 21 bls.

STENCIL PAPER AND INK

Arlac Dry Stencil Co., Deutschland, Hamburg, 83 cs.

DRAWING PAPER

Keuffel & Esser Co., Deutschland, Hamburg, 36 cs.

Keuffel & Esser Co., Caronia, London, 2 cs.

H. Reeve Angel & Co., Inc., Minnekahda, London, 7 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Minnekahda, London, 6 cs.

H. Reeve Angel & Co., Inc., Olympic, Southampton, 21 bls.

A. Giese & Son, Olympic, Southampton, 45 bls.

GALLIC PAPER

Keuffel & Esser Co., Caronia, London, 4 cs.

TISSUE PAPER

Old Master Paper & Pulp Corp., Deutschland, Hamburg, 8 cs.

G. W. Sheldon & Co., Caronia, London, 2 cs.

F. B. Vandegrift & Co., Laconia, Liverpool, 6 cs.

B. F. Drakenfeld & Co., Laconia, Liverpool, 3 cs.

PERGAMYN PAPER

F. C. Strype, Deutschland, Hamburg, 19 cs.

Central Union Trust Co., Deutschland, Hamburg, 8 cs.

BRISTOL BOARDS

Keuffel & Esser Co., Caronia, London, 5 cs.

SURFACE COATED PAPER

P. C. Zuhlke, Belgenland, Antwerp, 35 cs.

Gevaert Co. of America, Belgenland, Antwerp, 54 cs.

Phoenix Shipping Co., Deutschland, Hamburg, 1 cs.

GOLD COATED PAPER

F. Murray Hill Co., Columbus, Bremen, 8 cs.

TRANSFER PAPER

F. L. Kramer & Co., Pres. Roosevelt, Bremen, 25 cs.

PHOTO PAPER

Gerhard & Hey, American Trader, London, 1 cs.

DECALCOMANIA PAPER

L. A. Consmiller, Columbus, Bremen, 13 cs.

C. W. Sellers, Columbus, Bremen, 2 cs.

B. F. Drakenfeld & Co., Laconia, Liverpool, 21 cs. (duplex).

WRITING PAPER

Guibout freres, Columbus, Bremen, 4 cs.

H. Reeve Angel & Co., Inc., Minnekahda, London, 1 cs.

E. Dietzgen & Co., Kepwick Hall, Marseilles, 24 cs.

W. J. Byrnes, Ile de France, Havre, 1 cs.

CARBON PAPER

Hoole Service Co., American Trader, London, 2 cs.

OIL PACK PAPER

Graphic Duplicator Co., Singapore Maru, Hamburg, 8 bls.

PRESS BOARD

Blauvelt Wiley Paper Manfg. Co., Gripsholm, Gothenburg, 25 cs.

STRAW BOARD

W. von Doorn, Volendam, Rotterdam, 65 rolls.

A. Vuyk, Volendam, Rotterdam, 315 rolls.

MISCELLANEOUS PAPER

Distinctive Writing Paper Co., De Grasse, Havre, 6 cs.

R. F. Downing & Co., De Grasse, Havre, 6 cs..

S. Gilbert, Columbus, Bremen, 11 cs.

Steiner Paper Corp., Volendam, Rotterdam, 53 cs.

Globe Shipping Co., Volendam, Rotterdam, 4 cs.

R. Wilson Paper Corp., Cameronia, Glasgow, 46 cs.

Vernon Bros., Cameronia, Glasgow, 51 cs.

C. K. MacAlpine & Co., Gripsholm, Gothenburg, 102 bls.

E. H. Sargent & Co., Gripsholm, Gothenburg, 2 cs.

Japan Paper Co., M. Arnus, Barcelona, 2 cs.

P. Puttman, Ile de France, Havre, 2 cs.

Cheramy, Inc., Ile de France, 1 cs.

Hensel, Bruckman & Lorbacher, Ile de France, Havre, 3 cs.

R. F. Downing & Co., Ile de France, Havre, 1 cs.

Favor, Ruhl & Co., Ile de France, Havre, 10 cs.

P. H. Petry & Co., Ile de France, Havre, 9 cs.

Standard Products Corp., Ile de France, Havre, 13 cs.

H. Schutte & Co., C. Biancamano, Genoa, 15 cs.

RAGS, BAGGINGS, ETC.

V. Galaup, Pipestone County, Dunkirk, 100 bls. rags.

V. Galaup, Pipestone County, Havre, 75 bls. rags.

Castle & Overton, Inc., Pipestone County, Havre, 125 bls. bagging.

W. Steck & Co., Pipestone County, Havre, 135 bls. jute waste.

Chase National Bank, Deutschland, Hamburg, 92 bls. flax waste.

A. C. Feterolf, Adriatic, Liverpool, 46 bls. rags.

Myers, Lipman Co., Adriatic, Liverpool, 9 bls. rags.

American Express Co., Adriatic, Liverpool, 82 bls. rags.

E. Mayer, Singapore Maru, Hamburg, 104 bls. rags.

Green Hamilton Co., Volendam, Rotterdam, 44 bls. cotton waste.

Castle & Overton, Inc., Volendam, Rotterdam, 95 bls. bagging.

Brown Bros. & Co., Cameronia, Glasgow, 36 bls. paper stock.

C. R. Spence, Cameronia, Glasgow, 65 bls. paper stock.

Robert Blank, Cameronia, Glasgow, 37 bls. paper stock.

G. M. Graves Co., Inc., Dania, Copenhagen, 56 bls. rags.

Fidelity Trust Co., Kepwick Hall, Barcelona, 597 bls. rags.

Union Bank & Trust Co., Kepwick Hall, Barcelona, 140 bls. rags.

Arrowhead Mills, Kepwick Hall, Barcelona, 323 bls. rags.

Union Bank & Trust Co., Tergestea, Venice, 32 bls. rags.

Banco Com'l Italiane Trust Co., Tergestea, Trieste, 138 bls. rags.

E. Mayer, Thuringia, Hamburg, 90 bls. rags.

Chase National Bank, Thuringia, Hamburg, 425 bls. rags.

Chase National Bank, Thuringia, Hamburg, 52 bls. flax waste.

C. B. Richard & Co., Thuringia, Hamburg, 216 bls. rags.

Manufacturers Trust Co., Laconia, Liverpool, 23 bls. rags.

E. J. Keller Co., Inc., Marengo, ——, 63 bls. bagging.

E. J. Keller Co., Inc., Marengo, ——, 89 bls. rags.

E. J. Keller Co., Inc., Marengo, ——, 37 bls. linen threads.

Robert Blank, Marengo, Antwerp, 42 bls. rags.

Salomon Bros. & Co., Marengo, Antwerp, 240 bls. flax waste.

Darmstadt, Scott & Courtney, Marengo, Antwerp, 11 bls. thread waste.

E. Butterworth & Co., Inc., Marengo, Antwerp, 122 bls. rags.

S. Birkenstein & Sons, Inc., Marengo, Hull, 155 bls. rags.

G. W. Millar & Co., Marengo, Hull, 198 bls. rags.

G. W. Millar & Co., Marengo, Hull, 50 bls. bagging.

Castle & Overton, Inc., Marengo, Hull, 49 bls. bagging.

E. Butterworth & Co., Inc., Marengo, Hull, 356 bls. rags.

E. Butterworth & Co., Inc., Boston City, Bristol, 230 bls. rags.

C. R. Spence, Boston City, Bristol, 230 bls. rags.

Bank of The Manhattan Co., Boston City, Bristol, 152 bls. rags.

New York Trust Co., Wytheville, Rotterdam, 85 bls. cotton waste.

V. Galaup, Collamer, St. Nazaire, 259 bls. rags.

Goldman, Sachs & Co., Collamer, St. Nazaire, 68 bls. rags.

E. Butterworth & Co., Inc., Bannack, Manchester, 86 bls. bagging.

E. Butterworth & Co., Inc., Bannack, Manchester, 70 bls. paper stock.

Castle & Overton, Inc., Bannack, Manchester, 61 bls. bagging.

Ayres W. C. Jones, Bannack, Manchester, 31 bls. cotton waste.

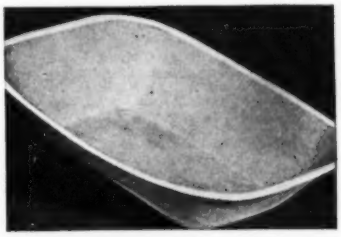
Bank of The Manhattan Co., Estonia, Danzig, 359 bls. rags.

Bank of The Manhattan Co., Estonia, Danzig, 245 bls. linsey garments.

(*Continued on page 74*)

No folds— no staples

AND no holes for leakage in Paprus Dishes. Rigid as wooden dishes, and moulded in one piece—yet they cost less than wood or paper dishes! Your grocery, meat market, and delicatessen trade will buy Paprus Dishes for these advantages. Your salesmen will enthuse over them. Your business will grow with them. Write for price list.



PAPRUS
DISHES

KEYES FIBRE COMPANY, INC.
General Sales Offices: GRAYBAR BLDG., NEW YORK
Factory: Waterville, Maine. JOHN M. HART COMPANY, *Manager of Sales*

Does this List Suggest a use to you?

BOILERS (Power, Heat, Process)
STEEL STACKS — STAND PIPES—
DIGESTORS—RIVETED PIPE—HY-
DRAULIC MAINS — TROUGHS —
CHUTES—COAL BUNKERS
TANKS (Storage & Pressure)
KILNS—BREECHINGS—BINS

Our Engineers will be glad to figure with you upon any of the above classes of "steel plate work." We've had nearly 50 years experience.

WRITE FOR LITERATURE
"Steel insures Strength and Security"

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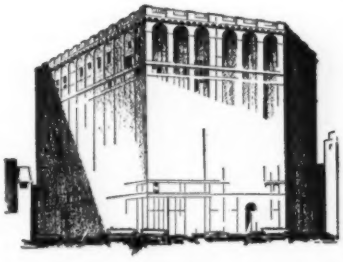


Buy from our leading paper manufacturers at this convenient location

The Fifth Avenue Building is a logical place to concentrate your paper buying. Start your New York trip here. You will find the New York offices and salesrooms of the leading mill supply manufacturers, paper merchants and mill engineers concentrated in this remarkable paper headquarters.

The very location of The Fifth Avenue Building puts you within immediate touch of all up-town and down-town New York. You can complete many of your seasonal needs in one building and on one buying trip. You are ten minutes by subway from the Pennsylvania Station and only thirteen minutes from the Grand Central Terminal. Two elevated lines are nearby and buses and surface lines pass the door.

THE FIFTH AVENUE BUILDING

Broadway and Fifth Avenue, at Madison Square, NEW YORK

"More than an office building"

Imports of Paper and Paper Stock

(*Continued from page 72*)

Bank of The Manhattan Co., Estonia, Danzig, 145 bls. bagging.
G. W. Millar & Co., Pres. Roosevelt, Bremen, 62 bls. rags.
E. J. Keller Co., Inc., Caledonian, ——, 215 bls. bagging.
Goschens & Cunliffe, Caledonian, Manchester, 436 bls. bagging.
Goschens & Cunliffe, Caledonian, Manchester, 192 bls. rags.

OLD ROPE

Brown Bros. & Co., Belgenland, Antwerp, 53 bls.
Brown Bros. & Co., De Grasse, Havre, 86 rolls.
Brown Bros. & Co., Karlsruhe, Bremen, 82 coils.
Brown Bros. & Co., Gripsholm, Gothenburg, 58 colls.
Brown Bros. & Co., Thuringia, Hamburg, 29 coils.
Brown Bros. & Co., Boston City, Bristol, 186 coils.
Brown Bros. & Co., Marengo, Hull, 66 coils.
N. E. Berzen, Marengo, Hull, 113 coils.
E. J. Keller Co., Inc., Marengo, ——, 117 bls.
N. E. Berzen, Collamer, Bordeaux, 331 coils.
W. Schall & Co., Kepwick Hall, Barcelona, 113 coils.
W. Schall & Co., M. Arnus, Barcelona, 36 bls.
N. Y. Trust Co., Dania, Copenhagen, 153 bls.

CASEIN

Karolith Corp., De Grasse, Havre, 334 bags.
Kalbfleisch Corp., Pan America, Buenos Aires, 417 bags.
Tradesman's National Bank, Pan America, B. Aires, 120 bags.

WOOD PULP

Castle & Overton, Inc., Volendam, Rotterdam, 399 bls. wood pulp.
E. M. Sergeant & Co., Gripsholm, Gothenburg, 175 bls. sulphite.
Price & Pierce, Ltd., Gripsholm, Gothenburg, 200 bls. wood pulp.
Oswego Falls Corp., Snefond, St. Peters, 1,187 cords wood pulp.
Castle & Overton, Inc., Thuringia, Hamburg, 1,962 bls. wood pulp, 302 tons.
Castle & Overton, Inc., Deutschland, Hamburg, 1,088 bls. wood pulp, 163 tons.
G. S. Kerr Co., Ltd. (Fulton, N. Y.), Dagfin, St. Albans, 1,420 cords wood pulp.

WOOD FLOUR

The Burnet Co., Wytheville, Rotterdam, 1,000 bags, 50,000 kilos.

WOOD PULP WADDING

Bendix Paper Co., Volendam, Rotterdam, 50 bls.

BALTIMORE IMPORTS.

WEEK ENDING JUNE 9, 1928

Atterbury & McKelvey, Dania, Oslo, 600 bls. wood pulp.
Chase National Bank, Dania, Oslo, 400 bls. wood pulp.
Congoleum Nairn Co., Collamer, St. Nazaire, 140 bls. rags.
R. J. Reynolds Tobacco Co., Collamer, St. Nazaire, 1,170 cs. cigarette paper.
Congoleum Nairn Co., Collamer, Bordeaux, 190 bls. rags.
Castle & Overton, Inc., Tergestea, Italy, 47 bls. rags.
Castle & Overton, Inc., Beemsterdyk, Rotterdam, 1,080 bls. wood pulp.
Castle & Overton, Inc., Harburg, Germany, 5,237 bls. wood pulp.

NEWPORT NEWS IMPORTS.

WEEK ENDING JUNE 9, 1928

Castle & Overton, Inc., Beemsterdyk, Holland, 720 bls. wood pulp.

CHARLESTON IMPORTS

WEEK ENDING JUNE 9, 1928

Castle & Overton, Inc., ——, Japan, 261 bls. bagging.

PHILADELPHIA IMPORTS.

WEEK ENDING JUNE 9, 1928

Chase National Bank, Dania, Oslo, 200 bls. wood pulp.
Chemical National Bank, Dania, Oslo, 2,100 bls. wood pulp.
A. H. Searle, Inc., Boston City, Bristol, 589 bls. rags.
Union Bank & Trust Co., Boston City, Bristol, 90 bls. old rope.
Castle & Overton, Inc., Boston City, Bristol, 152 bls. bagging.
J. B. Moors & Co., Boston City, Bristol, 533 bls. rags.
Philadelphia Girard National Bank, Caledonian, Manchester, 102 bls. rags.
Equitable Trust Co., Caledonian, Manchester, 236 bls. rags.
V. Galaup, Caledonian, Manchester, 3 bls. rags.
Anglo South American Trust Co., Caledonian, Liverpool, 76 bls. old rope.
Paper Service Co., Caledonian, Liverpool, 2 cs. wrapping paper.
Castle & Overton, Inc., Collamer, Bordeaux, 766 bls. rags.
Robert Blank, Collamer, Bordeaux, 134 bls. rags.
Castle & Overton, Inc., Collamer, St. Nazaire, 375 bls. rags.
P. Berlowitz, Collamer, St. Nazaire, 134 bls. rags.
E. A. Stone & Co., Inc., Collamer, St. Nazaire, 330 bls. rags.
D. I. Murphy, Cabo Villano, Coruna, 38 bls. rags.
E. J. Keller Co., Inc., Maryland, ——, 131 bls. rags.
E. J. Keller Co., Inc., London Mariner, ——, 86 bls. rags.
Castle & Overton, Inc., Quaker City, Ireland, 39 bls. rags.
Castle & Overton, Inc., Spar, Belgium, 190 bls. rags.
Castle & Overton, Inc., Beemsterdyk, Holland, 898 bls. wood pulp.
Castle & Overton, Inc., Harburg, Germany, 534 bls. wood pulp.
Castle & Overton, Inc., Maryland, France, 106 bls. rags.
Castle & Overton, Inc., London Mariner, London, 366 bls. rags.
Castle & Overton, Inc., Hannover, Germany, 123 bls. rags.
Castle & Overton, Inc., Tomalva, Holland, 307 bls. rags.

NORFOLK IMPORTS.

WEEK ENDING JUNE 9, 1928

Dickman, Wright & Pugh, Boston City, Bristol, 124 bls. old rope.
E. J. Keller Co., Inc., Ambridge, ——, 58 bls. rags.

BOSTON IMPORTS

WEEK ENDING JUNE 9, 1928

Houghton Wool Co., Pipestone County, Dunkirk, 16 bls. thread waste.
Forte Moran Co., Pipestone County, Dunkirk, 30 bls. thread waste.
Forte Moran Co., Pipestone County, Havre, 13 bls. rags.
Atterbury Bros., Inc., Pipestone County, Havre, 30 bls. old paper.
Ayres W. C. Jones, Pipestone County, Havre, 93 bls. flax waste.
E. A. Stone & Co., Inc., Pipestone County, Havre, 97 bls. string waste.
V. Galaup, Pipestone County, Havre, 446 bls. rags.
Mystic Waste Co., Pipestone County, Havre, 15 bls. rags.
Castle & Overton, Inc., Pipestone County, Havre, 35 bls. new cuttings.
Boston Mill Supply Co., Pipestone County, Havre, 348 bls. rags.
Atterbury & McKelvey, Dania, Oslo, 1,050 bls. wood pulp.
Chase National Bank, Dania, Oslo, 2,360 bls. wood pulp.
Buck, Kiaer & Co., Inc., Dania, Oslo, 125 bls. wood pulp.
G. M. Graves Co., Inc., Dania, Copenhagen, 60 bls. rags.
Baring Bros. & Co., Caledonian, Manchester, 562 bags hide cuttings.
Baring Bros. & Co., Caledonian, Manchester, 131 bls. new cuttings.
T. D. Downing & Co., Caledonian, Manchester, 66 bls. rags.
New England Waste Co., Caledonian, Manchester, 23 bls. rags.
G. F. Malcolm, Caledonian, Liverpool, 32 cs. tissue paper.
F. S. Webster, Caledonian, Liverpool, 7 cs. tissue paper.
Baring Bros. & Co., Caledonian, Liverpool, 42 bags hide cuttings.
Castle & Overton, Inc., Beemsterdyk, Rotterdam, 823 bls. wood pulp.
Castle & Overton, Inc., Beemsterdyk, Rotterdam, 49 bls. rags.
Castle & Overton, Inc., J. Skinner, Germany, 1,294 bls. wood pulp.

NEW ORLEANS IMPORTS

WEEK ENDING JUNE 9, 1928

Castle & Overton, Inc., Gand, Antwerp, 41 bls. bagging.
Castle & Overton, Inc., Carplaka, France, 190 bls. bagging.
Castle & Overton, Inc., Montsella, Italy, 116 bls. rags.

Charles H. Barr Addresses Paper Salesmen

The regular weekly luncheon and meeting of the New York Division of the Salesmen's Association of the Paper Industry was held last Monday at the Canadian Club, New York, and attracted an excellent attendance.

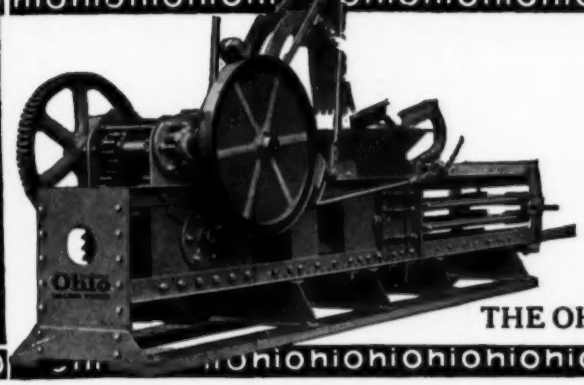
Dr. E. O. Merchant, who acted as chairman, presented one of his business charts and analyzed the factors of speculation and economics in an able manner. He declared that the current weakness of commodity prices was due to the tighter money situation.

Charles H. Barr, editor and publisher of the Paper Salesman, was the guest speaker of the session. Mr. Barr was for a number of years manager of sales promotion and advertising for the Crocker-McElwain Company and the Chemical Paper Manufacturing Company.

He is the editor of "Rags," an advertising booklet published co-operatively by Rag Content Paper Manufacturers, thirty mills being represented and is also an ex-president and director of the Paper Makers Advertising Club.

Mr. Barr's specific subject was "The Paper Salesman of the Future." He declared that the salesman of the future would be an embryo sales manager. He would have a thorough knowledge of modern methods of merchandising and would be able to assist in solving the problems of the paper merchant.

Mr. Barr also discussed the advertising campaigns of the paper mill and the best methods of merchandising the various publicity plans. His address was followed by an interesting discussion in which many of the members took part.

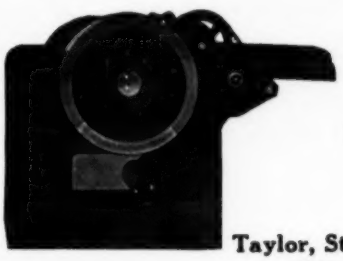


FAMOUS
Ohio
BALING PRESS

Any compressible material can be baled in this press. This includes paper, cardboard, fibre, rags, shavings and any material of like character.

Made in Three Sizes

THE OHIO CULTIVATOR CO., Bellevue, Ohio



GIANT

RAG CUTTERS

Taylor, Stiles & Company
Riegelsville, N. J.

THE WATERBURY FELT CO.
Skaneateles Falls, N. Y.

FELTS AND JACKETS
Highest Quality—Prompt Service

Manufacturers of the
FAMOUS 5 X C JACKETS
FOR
FAST RUNNING MACHINES
They Satisfy!

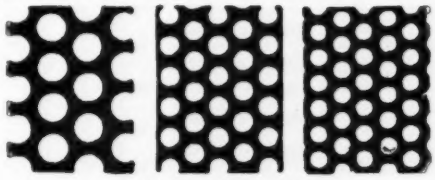
C. K. WILLIAMS & CO. ANCHOR BRAND DRY COLORS AND FILLERS EASTON, PA. U.S.A.

Red
Brown
Yellow
} Oxides

Talc
Yellow Ochres,
Umbers, Agalite

C. K. Williams & Company
EASTON, PA.

PERFORATED METALS



of Every Description
For Pulp and Paper Mills
THE HARRINGTON & KING PERFORATING CO.
5652 Fillmore St., Chicago, Ill.
NEW YORK OFFICE: 114 Liberty St.

TYPE "B"
IRON EXTRACTOR

It consists of special magnetic surfaces of great power over which the paper stuff is made to pass. As a result, all the iron and many other foreign substances are completely extracted. Hundreds of these devices are in use daily and no one of them has failed to give complete satisfaction. Write us for Bulletins and full data.

THE ROLAND T. OAKES CO., Holyoke, Mass.
Electrical Specialists. *Established 1885*

for
PAPER MAKING

Paper Mill Stocks and Bonds

Quoted by Messrs. McGay & Co., 25 Broad street, New York City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	ASKED
Abitibi Fibre Company 6s, 1947	104	105
Abitibi Power & Paper 6s, 1940	104½	106½
Abitibi Power & Paper 6s, serially to 1934	100½	102½
A. P. W. Paper & Power 7s, 1945	101½	103½
American Writing Paper 6s, 1947	86	89
Bastrop Pulp & Paper 6½s, 1940	103½	105½
Beaver Board 8s, 1933	102	103
Beaver Products Corp. 7½s, 1942	109	111
Bedford Pulp & Paper 6½s, 1942	98	100
Belgo-Canadian Paper 6s, 1943	103	105
British-Columbia Pulp & Paper 6s, 1950	90	92
Brompton Paper Serial A 6s, 1946	101½	103½
Brompton Pulp & Paper 6s, 1935	100	...
Brown Paper Mills Serial 6s, 1941	99	101
Brown Company 5½s, 1946	100	102
Bryant Paper 6s, 1942	100	101½
Canadian Paper Board 7s, 1937	97½	99½
Cape Breton Pulp & Paper 6s, 1932	103	...
Celotex Company 6s, 1929	97	99
Celotex Company 6½s, 1939	100	102
Celotex Company of Chicago Debenture 6s, 1936	97	100
Central Paper Company Serial 6½s, 1942	86	89
Central Paper 7s, 1934	85	90
Champion Coated Paper Serial 6½s, 1934	100	...
Champion Coated Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 8s, 1930	100	...
Champion Paper Corp. 6s, 1945	95	98
Chicago Mill & Lumber Serial 5½s, 1936	98	100
Container Corp. of America Debenture 6s, 1936, ex-warrants	99	101
Continental Paper Products 6½s, 1943	92	95
Cornell Wood Products 7½s, 1937	103	...
Crown Willamette 6s, 1951	102	103½
Dells Paper & Pulp Serial 6s, 1938	95	98
Dixon Board Mills Serial 6s, 1942	60	...
Donnaconna Paper 5½s, 1948	96½	98½
Eastern Manufacturing Co. 7s, 1938	98	100
Escanaba Paper Serial 6s, 1939	98	100
Escanaba Paper 6½s, 1935	96	99
Filer Fibre Serial 7s, 1935	90	95
Fort Orange Paper 7s, 1942	104	...
Fort William Paper 6s, 1946	101	104
Fox River Paper 7s, 1931	100	...
Fraser Company 6s, 1950	103	105
Hammermill Paper Serial 6s, 1939	101	...
Hawley Pulp & Lumber 6s, 1946	96	...
Hawthorne Paper Company 6s, 1937	80	...
Hoberg Paper & Fibre 7s, 1937	95	97
Industrial Fibre Corp. Debenture 8s, 1933	100	...
International Paper 6s, 1955	102	104
International Paper 5s, 1947	100	101
Itasca Paper & Prairie River Paper Serial 5½s, 1938	99½	...
Itasca Paper & Prairie River Paper Serial 6s, 1938	99	...
Jessup & Moore First 6s, 1945	88	92
Kalamazoo Vegetable Parchment 6s, 1938	99	101
Lake Superior Pulp & Paper 6s, 1941	105	108
Manitoba Paper 6½s, 1936	102½	104½
Marathon Paper Mills Serial 5½s, 1942	99½	101
Marathon Paper Mills Serial 6s, 1937	100	...
Marinette & Menominee 7½s, 1936	103	105
Mead Pulp & Paper 5% Notes Serially, 1937	95	100
Mead Fibre 7s, 1937	98	101
Menosha Printing & Carton 6½s, 1939	99½	...
Midwest Box Company 6½s, 1940	100	...
Minnesota Ontario Paper Serial 6s, 1945	99	100½
Murray Bay Paper 6½s, 1947	103	105
Munissing Paper Serial 6s, 1936	98	...
Nekoosa Edwards Paper 6s, 1942	96	...
Ontario Pulp & Paper 6s, 1931	108½	110½
Orono Pulp & Paper 6s, 1943	99	...
Orono Pulp & Paper 5s, 1941	96½	...
Oswegatchie Paper Serial 6s, 1932	95	100
Oswego Falls Corp. 6s, 1941	99	102
Oxford Paper 6s, 1947	102½	...
Oxford Paper 6s, 1947	102½	...
Paepcke Paper Mills 7s, 1930	99	...
Parker-Young Company 6½s, 1944	98	100
Paterson Parchment Paper 6s, 1938	101½	103
Penobscot Chemical Fibre 6s, 1942	102	105
Port Alfred Pulp & Paper 6½s, 1943	105	107
Port Alfred Pulp & Paper 5½s, 1947	98½	100
Price Brothers 6s, 1943	105	...
Provincial Paper 5½s, 1947	98½	...
Provincial Paper 6s, 1940	100	...
Queen City Paper 7s, 1933	100	...
Richardson & Company 6s, 1938	100	...
River Raisin Paper 6s, 1936	99	101
Riordan Pulp & Paper 6s, 1942	102	104
Rolland Paper 6s, 1937	99	101
St. Anne Paper 6½s, 1946	102	104
St. Croix Paper Serial 5s, 1937	99	...
St. Helen Pulp & Paper 6½s, 1931	99	102
St. Lawrence Paper Mills 6s, 1946	101½	103½
St. Lawrence Paper Mills 6½s, 1936	100½	102½
St. Maurice Valley Corp. 6s, 1945	102	104
St. Maurice Valley Corp. 5½s, 1947	98½	100½
St. Regis Paper of Canada 6s, 1931	100	101½
St. Regis Paper of Canada 6½s, 1934	100	101
Smith (Howard) Paper Mills 6s, 1934	101	...
Smith (Howard) Paper Mills 7s, 1941	104	106
Southern Paper Company 6½s, 1937	100	...
Spanish River Pulp & Paper 6s, 1931	108	110
Stevens-Thompson Paper 6s, 1942	94	96
Taggart Brothers 6s, 1944	95	100
Tait Paper &Color Industries 6s, 1935	88	92
Ticonderoga Pulp & Paper 5s, 1930	94	...
Ticonderoga Pulp & Paper 6s, 1940	100	102
Tomahawk Kraft Paper 6s, 1938	98	...
Tomahawk Pulp Paper 7s, 1932	99	...
Tonawanda Paper 5½s, Series 1941	99	102
U. S. Envelopes 5s, Series 1934	99	...
Union Bag & Paper Power 6s, 1932	98	100
United Wall Paper Factories 6s, 1947	96	99
Warren (S. D.) Company 6s, 1945	103	105
Watab Paper 6½s, 1942	102½	104½
Waterway Paper Products 6s, 1931	100½	101½
Wayagamack Pulp & Paper 6s, 1951	103	105
Westfield River Paper Serial 7s, 1943	89	93
Whitmer-Parsons Pulp & Lumber 8s, 1938	13	20
Whitaker Paper 7s, 1942	108	110

STOCKS	BID	ASKED
American Box Board, Pfd.	9¼	10¼
American Box Board, Com.	9¼	10¼
Am. Tissue Mills, 7% Pfd.	90	93
British Columbia P. & P., Pfd.	70	75
Brompton Pulp & Paper, 8% Pfd.	100	102
Brown Corpn., 7% Pfd.	104	None Off.
Champion Fibre, 7% Pfd.	108	110
Diem & Wing, 7% Cum. Pfd.	92	97
Eastern Mfg. Co., 1st Pfd.	61	64
Great Northern Paper, Com.	80	83
Hammermill Paper, 7% Pfd.	108	110
Hinde & Dauch, Com.	135	None Off.
Hinde & Dauch, 6% Pfd.	102	None Off.
Holyoke Card & Paper	160	None Off.
Marathon Paper Mills, Com.	125	...
Midwest Box Co., 8% Pfd.	98	102
Midwest Box Co., 6% Pfd.	95	99
Louis De Jonge Co., 7% Pfd.	94	97
Oxford Papers, Com.	180	190
Oxford Paper Co., Pfd.	109	111
Penobscot Chemical Fibre, Com.	70	80
Richardson Co., Com.	180	200
Rubberoid	112	117
Sabin Robbins Paper Co., 7% Pfd.	105	110
St. Croix Paper	155	170
St. Regis Paper Co., 7% Cum. Pfd.	107½	109½
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper Company	58	63
West Virginia Pulp & Paper, Pfd.	102½	105½
Whittaker Paper, 7% Cum. Pfd.	105	None Off.

Seattle Paper Plant Construction Started

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., June 6, 1928.—Tom G. Taylor, of Portland, Ore., has announced that start has been made on the new plant for the Seattle Pulp and Paper Mill, Inc., which he is financing through his firm. Mr. Taylor states that the new concern has allied with it men who are thoroughly familiar with logging and lumber conditions in the Puget Sound region.

He has already been previously instrumental in financing three pulp and paper mills in Oregon and Washington. A ten year contract has been entered into in this last enterprise with the Canyon Lumber Mills of Everett, for the raw material, at a rate which Mr. Taylor states is the lowest for this on the Pacific Coast.

The Taylor project involves $2,000,000 expenditure. The plant will make 50 tons of high grade bleached sulphite pulp daily, disposing of the balance of the pulp in eastern markets.

A site consisting of 21 acres in the industrial section of Seattle, known as Duwamish Waterway, has been leased, and the State has issued a perpetual permit to the mill to appropriate 10,000,000 gallons of water from the Green River for operating the plant. The State has also issued a permit for the paper company to dump its sulphite liquor into the Duwamish River at ebb tide.

Joseph Kaster, well-known in Pacific Northwest paper mill circles, will be general manager of the new mill. He was associated with Mr. Taylor and others in helping to build the St. Helens Pulp and Paper Mill at St. Helens, Ore. Prior to that he built and operated a mill at Salem, and was for 25 years superintendent for the Crown-Willamette Paper Company.

Among officers and directors of the Seattle Pulp and Paper Mill, Inc., are: Joseph Irving, Everett, president, who is also president of the Puget Sound Loggers' Association; James Stirrat, president of Stirrat & Goetz Investment Company and the Independent Asphalt Paving Company; E. K. Worthington, president of the Washington Tug and Barge Company, and also president of the Seattle Mortgage Company; Ralph Miller, director of pulp mills in Bellingham and Anacortes, and president of the Mutual Paper Company, of Seattle; Corwin S. Shank, attorney, and Allen B. Engle, secretary of the new company, who is a graduate of Yale School of Forestry and has been in the logging business on Puget Sound for several years.

For reliable running and average long life

LINDSAY FOURDRINIER WIRES

are unsurpassed

We make them for the largest and fastest machines.

Cylinder Wires All Sizes

The Lindsay Wire Weaving Co.

Collinwood Sta. CLEVELAND, OHIO

Silicate Saves You Minutes and Dollars

Paper makers question what, why, when and where. You have to show them what's what. (All charter members of the time-honored society from Missouri.) But Quartz Quality silicate is ready for your question, where can I use it in my mill? Here's where you can save some precious dollars and minutes with Quartz Quality silicates:

For acid proof lining of digester.
To improve finish of paper.
To increase retention of rosin, clay, starch, fiber.
To thin clay for beater or coating.
To reduce cost of capping rolls.
To make concrete dustless.
To neutralize acid white water.

So besides making better paper at less cost, Quartz Quality silicate is a Handy Andy about the mill. No job's too small, none too big. He's a hard worker. Give him a chance.

Philadelphia Quartz Company
MAKERS OF SILICATES OF SODA
Philadelphia, Pa.

Prompt deliveries made from stocks in
NEW YORK
BOSTON
PHILADELPHIA
CHICAGO

TRADE MARK

No ifs, ands, or buts

We like to have you ask about the quality of Heller & Merz dyestuffs. No questions are evaded. These colors are made to the requirements of modern scientific demand. That is why we believe Heller & Merz dyestuffs will satisfy you as they are satisfying so many exacting users.

The HELLER & MERZ COMPANY
505 Hudson St., New York

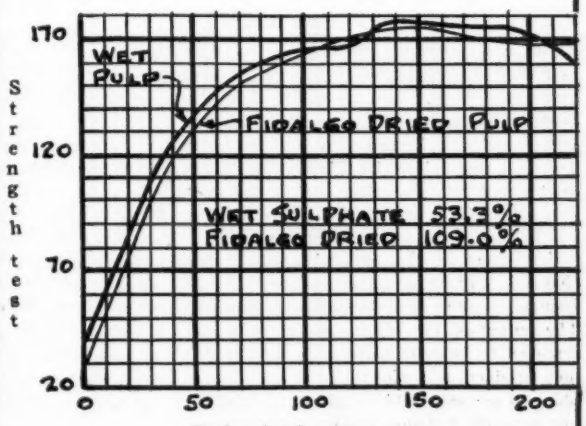
Boston 287 Atlantic Ave. | Chicago 146 W. Kinzie St. | Philadelphia 114 Market St.

Springfield, Mass. 24 Lester Street

Factory—NEWARK, N. J.

FIDALGO DRYING SYSTEMS

Wet Pulp Results With Dry Pulp



Curve Illustrating comparison between Wet and FIDALGO Dried in Beating and Strength Tests.

Note how closely the curve on FIDALGO Dried Pulp follows the Wet pulp curve.

High steam economy. Shredded Pulp shipped in Bales.

TECHNICAL ECONOMIST CORPORATION
40 RECTOR STREET NEW YORK, N. Y.
TELEPHONE WHITEHALL 3243 CABLE "HERENCO"

New York Market Review

Office of THE PAPER TRADE JOURNAL,
Wednesday, June 13, 1928.

During the past week, trading in the local paper market was rather light, although the industry remains in a strong position. Both production and consumption are falling off slightly. This condition may be fairly attributed to the approach of the holiday season. Sales forces of the leading paper houses are still active and expect to secure a good volume of orders before the usual midsummer lull. Prices are holding to previously recorded levels in most instances.

Demand for news print paper was fairly persistent and consumers are reported to be taking a satisfactory amount on contract. Production in the United States and Canada averaged 78 per cent of capacity during the past week, according to statistics gathered by the News Print Service Bureau. Competition for sizable orders is very keen and generous concessions are being made on contracts signed for the forthcoming year.

While the paper board market is exhibiting a strong undertone, production has fallen off slightly and the demand for the various grades has quietened down somewhat. Prices are generally holding up to schedule and shading is infrequent. Both coated and uncoated book paper are moving in good volume. The fine paper market rules moderately active with no radical price changes. Interest in tissue papers is seasonal. The coarse paper market is practically unchanged and wrapping paper is moving in normal volume for the time of the year.

Mechanical Pulp

Business transacted in the ground wood market during the past week was mostly along routine lines. Consumers are rather cautious at present and are said to be only purchasing for immediate requirements. Contract supplies are proceeding in a satisfactory manner, however. While production of mechanical pulp has been maintained in fair volume, accumulations are not excessive and prices continue steady and unaltered.

Chemical Pulp

Conditions in the chemical pulp market are practically unchanged. Shipments against contract are moving in good volume. Demand for the various grades is showing signs of improvement. The output of the better grades of Swedish bleached sulphite is reported to be practically sold out for the year. Swedish kraft pulp production is said to be 95 per cent sold and unbleached sulphite 80 per cent sold for the year. Prices of the various grades are generally holding to schedule.

Old Rope and Bagging

Mill interest in both domestic and imported old rope is growing and as a result quotations rule steady to firm. Foreign manila rope is offered at from 3.00 to 3.35 and domestic manila rope at from 3.25 to 4.00. The bagging market is rather quiet. Roofing bagging is only moderately active and gunny is in light request. Prices remain unaltered, in most instances.

Rags

While the lower grades of imported rags are beginning to arouse more interest, the higher class grades are only moderately active. Prices of foreign rags remain unchanged and are still considered rather high. Demand for the various grades of domestic rags is mostly seasonal, although cotton cuttings are in excellent request. Prices of domestic rags are generally holding to previously quoted levels, and shading is infrequent.

Waste Paper

Trading in the paper stock market was fairly active. The immediate request for book stock has quietened down somewhat, although offerings are still decidedly scarce, and prices practically unchanged. The lower grades of waste paper are moving in satisfactory volume and mixed papers, in particular, are displaying more strength. No radical price changes were recorded in the paper stock market during the past week.

Twine

Seasonal conditions prevail in the twine market. The demand for the various grades is considered fairly satisfactory for the time of the year and dealers are looking forward to the coming fall campaign with confidence, according to close observers of the situation. Prices remain practically unchanged from previously reported levels and there is not much talk of concessions around at present.

American Writing Paper Expansion

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., June 11, 1928.—Improvements costing half a million dollars will be made in the plants of the American Writing Paper Company, Inc., during the course of the year, under an authorization of the board of directors made just before the departure for Europe of Sidney L. Willson, president of the company. Mr. Willson will attend the international paper meeting at Heidelberg, Germany.

The work in Holyoke will include erection of a new stock house, the installation of new equipment and the altering of the interior arrangement of some of the mills. The company is now operating on a sound financial basis and production is going forward without dimunition, with several new lines being added to the wide variety of papers manufactured in the Holyoke plants of this company.

Among the new papers is one designated "Charlemagne," developed for high grade catalogues and booklets, the cover piece for the sample folder of the paper being an adaptation of a window in the church of St. Remy at Rheims.

The sprightly novelty laid paper "Zanzibar," which is designed especially for direct mail pieces, is reported by the company as being well received. This paper is produced in six colors and white. The sample folder described it as follows:

"The herring-bone nature of this laid pattern suggests ripples in the changing sands of Zanzibar, that isle of romance off the east coast of Africa. The zigzag motif gives an effect of motion, a subtly powerful force in advertising."

The American Writing Paper Company, Inc., also has an unusual paper for papeterie and announcement use, put out in five different color tones flaked with confetti. It is designated "Mardi Gras."

BOLTON QUALITY

JOHN W. BOLTON & SONS, INC.

EAGLE KNIFE & BAR WORKS

Lawrence, Mass.

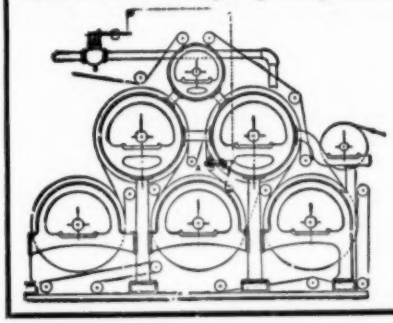
The only firm making KNIVES for every machine from wood pile to finishing room.

It's the KNIVES that do the work!

The Pickles Drying Regulator

WE ARE SAFE IN OUR PROPOSITION

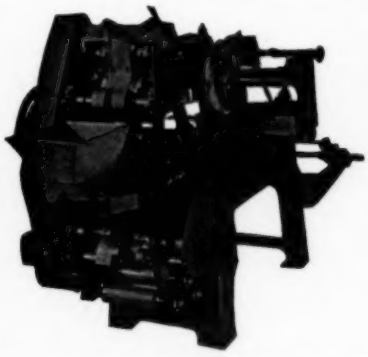
YOU'LL MAKE NO MISTAKE IN ACCEPTING IT



Pickles Drying Regulator

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

W. F. PICKLES **Buckland, Conn.**



HIGHEST SPEED
Paper Bag Machinery

Get My Quotations Before Placing Your Orders

Special Machinery Designed and Built

A. L. PARRISH,
1702 Robinson St., South Bend, Ind.

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company
PROVIDENCE, R. I.

Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL,
Wednesday, June 13, 1928.

BLANC FIXE.—The blanc fixe market was moderately active during the past week. Prices continue to rule steady and unchanged. Inquiries are fairly numerous. The pulp is selling at $50 per ton, in bulk, and the powder is quoted at from 4¼ cents to 4 ⅜ cents a pound, in barrels, at works.

BLEACHING POWDER.—While demand for bleaching powder is light, the market is in a sound position. Supplies are moving into consumption in a routine manner. Prices are generally holding to schedule. Bleaching powder is still offered at from $2 to $2.35 per 100 pounds, in large drums, at works.

CASEIN.—Most of the business transacted in the casein market was along routine lines. Prices remain unchanged. Domestic casein is selling at from 15¼ cents to 16½ cents a pound. Imported casein is quoted at from 15¾ to 16½ cents a pound, all in bags, car lot quantities.

CAUSTIC SODA.—Although competition for caustic soda orders is keen, the market is exhibiting a strong undertone. Prices are holding to schedule. Solid caustic soda is quoted at from $2.90 to $2.95 per 100 pounds. The flake and ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—Contract withdrawals of china clay are moving in excellent volume. Prices remain unaltered. Imported china clay is offered at from $15 to $25 a ton, in bulk, ship side. Domestic paper making clay is selling at from $8 to $9 a ton, at mine, and pulverized at from $10 to $12 a ton.

CHLORINE.—Conditions in the chlorine market are quite satisfactory. Contract shipments are going forward in a regular manner. Prices are unchanged. Chlorine is quoted at 3½ cents a pound, in tanks, or multi-unit cars, at works, on contract orders. The spot quotation ranges from 3¾ cents to 4 cents a pound.

ROSIN.—Some improvement was noticed in the rosin market and prices were much firmer. At the naval stores, gum rosin is now quoted at from $9.20 to $9.55 per 280 pounds, ex dock, in barrels. Wood rosin remains unchanged, and is still selling at from $6.50 to $7.30 per 280 pounds, southern shipping points.

SALT CAKE.—Demand for salt cake is fairly active. Shipments against contract are proceeding in a satisfactory manner. Prices are holding to previously recorded levels. Salt Cake is selling at from $15 to $17 a ton, in bulk, at works. Chrome salt cake is quoted at from $14 to $15 a ton, in bulk, at works.

SODA ASH.—The position of the soda ash market is practically unchanged. Contract withdrawals continue to move at an excellent pace. Prices are generally holding to schedule. Contract quotations on soda ash, in car lots, at works, are as follows: in bags, $1.32½, and in barrels, $1.55.

STARCH.—No radical changes were reported in the starch market during the week, although trading was somewhat quieter. Prices are generally being maintained at previously quoted levels. Special paper making starch is still offered at $4.12 per 100 pounds, in bags, and at $4.29 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—Steadiness prevails in the sulphate of alumina market. Supplies are moving into consumption in excellent volume. Commercial grades of sulphate of alumina are selling at from $1.40 to $1.55 per 100 pounds, in bags, at works. The iron free is quoted at from $1.90 to $2.05, in bags.

SULPHUR.—The undertone of the sulphur market is steady. Demand is persistent and preparations are being made for material increase in production. Prices are being well maintained. Sulphur is quoted at from $18 to $19 a ton, in bulk, at mine, on contract orders. The spot quotation is $20 per ton.

TALC.—The amount of business transacted in the talc market during the past week was well up to average for the season. Demand for this product is fairly satisfactory at present. Domestic talc is offered at from $16 to $18 a ton, at mine. Imported talc is still selling at from $18 to $20 a ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	6.35	@ 7.75
M. F.	6.25	@ 7.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.10	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .85
Kraft	.90	@ 1.00
Manila	.75	@ .85
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	4.50	@ 4.75
Southern	4.25	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	47.50	@50.00
Straw	52.50	@55.00
Chip	45.00	@47.50
Binders' Boards	65.00	@67.50
Sgl. Mla. Ll. Chip.	52.50	@55.00
Wood Pulp	80.00	@85.00
Container	67.50	@72.50
85 test Jute Liner.	57.50	@60.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	30.00	@31.25
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@29.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.65	@ 4.25
Easy Bleaching	2.70	@ 2.90
No. 1 strong unbleached	2.60	@ 2.70
Mitscherlich unbleached	2.65	@ 3.25
No. 2 strong unbleached	2.50	@ 2.60
No. 1 Kraft	2.60	@ 2.75
No. 2 Kraft	2.40	@ 2.50
Sulphate—		
Bleached	3.75	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.60	@ 2.75
News Sulphite	2.40	@ 2.65
Mitscherlich	3.00	@ 3.70
Kraft (Domestic)	2.70	@ 3.30
Soda Bleached	3.35	@ 3.50
Sulphate Screenings—		
Coarse	.75	@ .85
Refined	1.50	@ 1.65

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.75	@12.25
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.25	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.55	@ 1.65
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cottons	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
No. 1 White Linens	7.25	@ 8.00
No. 2 White Linens	5.50	@ 6.25
No. 3 White Linens	4.50	@ 5.00
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.25
Med. Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.25	@ 2.50
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 2.00
Lindsay Garments	1.85	@ 1.95
Dark Cottons	1.55	@ 1.65
Old Shopperies	1.50	@ 1.55
New Shopperies	1.45	@ 1.55
French Blues	2.10	@ 2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.65	@ 1.75
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, heavy	1.60	@ 1.65
Bright Bagging	1.60	@ 1.65
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	3.00	@ 3.25
Domestic	3.25	@ 4.00
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.25	@ 3.50
Hard, White, No. 2	2.75	@ 3.00
Soft, White, No. 1	2.60	@ 2.85
Flat Stock—		
Stitchless	1.85	@ 1.95
Overissue Mag	1.90	@ 2.00
Solid Flat Book	1.75	@ 1.80
Crumpled No. 1	1.35	@ 1.45
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.80	@ 1.90
Manilas—		
New B. B. Chips	.65	@ .75
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.75	@ .85
Container	.60	@ .70
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	1.80	@ 1.90
News—		
No. 1 White News	1.55	@ 1.65
Strictly Overissue	.80	@ .90
Strictly Folded	.60	@ .70
No. 1 Mixed Paper	.45	@ .50
Common Paper	.30	@ .35

CLAY
OF ABSOLUTE UNIFORMITY

American Made for American Trade

Two Leading American Clays

H. T. BRAND

For Coating and Filling

Now used in many of largest paper mills

KLONDYKE BRAND
Filler Clay

43 years' experience in American washed clays are back of these products.

Ask for Samples

The EDGAR BROS. CO.
50 Church Street New York

The

ST. REGIS PAPER COMPANY

Daily Capacity
525 TONS

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Catalog and Directory Papers
Fibre Wrapping Papers
Packers Oiled Manila
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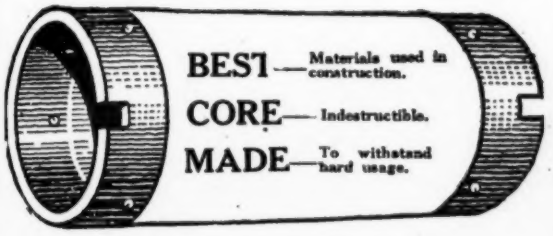
SHIPPING INSURANCE

The Use of

ELIXMAN CORES

protects your rolls and insures their delivery to your customer in perfect condition. They eliminate claims for damages

SHIPPING INSURANCE

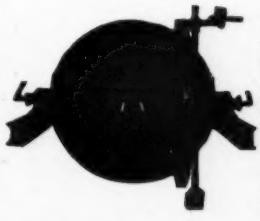


Your two sources of supply are

Canadian Elixman Company
HAMILTON, ONTARIO

Elixman Paper Core Company
CORINTH, N. Y.

SINCE 1887



Biggs Globe and Cylinder Rotary Bleaching Boilers have become known in every part of the world as standard paper-plant equipment. Repeated installations indicate very positively the complete satisfaction of our old customers.

THE BIGGS BOILER WORKS CO.
AKRON, 20, OHIO

Twines

(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.21	@	.23
No. 2	.20	@	.22
Tube Rope—			
4-ply and larger	.18	@	.19
Fine Tube Yarn—			
5-ply and larger	.23	@	.27
4-ply	.24	@	.28
3-ply	.26	@	.30
Unfinished India—			
Basis	.16	@	.17
Paper Makers Twine			
Balls	.13	@	.15
Box Twine, 2-3 ply	.17	@	.19
Jute Rope	.21	@	.23
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.18	@	.20
No. 2 Basis	.16	@	.18
Sisal Lath Yarn—			
No. 1	.16	@	.18
No. 2	.14	@	.16
Manila Rope	.24	@	.26

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¾	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.05¾	@	.06¼
Southern Kraft	.04½	@	.05
No. 2 Kraft	.05	@	.05¾
Wood Tag Boards	.04¾	@	.06¾
Sulphite Screenings	.03	@	.03¾
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton—			
(Delivered Central Territory)			
Plain Chip	37.50	@	41.00
Solid News	47.50	@	—
Manila Lined Chip	55.00	@	—
Container Lined—			
(Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.80	@	2.90
White Env. Cuttings	3.60	@	3.70
No. 1 Soft Shavings	2.50	@	2.60
No. 1 Mixed	1.00	@	1.05
No. 2 Mixed	.90	@	1.00
Ledger & Writings	1.55	@	1.65
Solid Books	1.25	@	1.35
Blanks	1.70	@	1.80
Krafts	1.90	@	2.00
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.90	@	1.00
Folded News (oversize)	.65	@	.75
Old Newspapers—			
No. 1	.65	@	.75
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.70	@	.80
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Label	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.08½	@	.09
Manila Sul., No. 1	.04½	@	.06
Manila, No. 2	.04	@	.04½
No. 2 Kraft	.05¼	@	.05½
No. 1 Kraft	.06	@	.06¼
Common Bogus	.02¾	@	—
Straw Board	60.00	@	65.00
News Board	47.50	@	—
Chip Board	45.00	@	—
Wood Pulp Board	4.50	@	5.00
(Carload Lots)			
Binder Boards—			
No. 1, per ton	80.00	@	90.00
No. 2, per ton	75.00	@	80.00
Carload lots	65.00	@	75.00
Tarred Felts—			
Regular	58.00	@	63.00
Slaters (per roll)	84	@	.94
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.44	@	1.54
Best Tarred, 3-ply	1.93	@	2.08
No. 1 Mixed Paper	.65	@	.70

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.11½	@	.12
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable	.04	@	.04½
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07½	@	.08
New Blue	—	@	.04
New Black Soft	.05½	@	.06
New Light Seconds	.03	@	.03½
Khaki Cuttings	.04½	@	.05
Corduroy	.03	@	.03¾
New Canvas	.08	@	.09½
New Black Mixed	.05	@	.05½

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.75	@	2.00
Domestic	1.75	@	2.00
Manila Rope	3.00	@	3.50
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps	1.40	@	1.50
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	—	@	2.50

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.25	@	3.35
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.40	@	2.50
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	2.00	@	2.10
Writing Paper	1.75	@	1.90
No. 1 Books, heavy	1.75	@	1.90
No. 2 Books, light	1.25	@	1.40
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	1.00	@	1.10
Container Manila	.80	@	.90
Old Kraft	2.25	@	2.30
Common Paper	.55	@	.60
No. 1 Mixed Paper	.55	@	.60
Straw Board, Chip	.65	@	.75
Binders Board, Chip	.65	@	.75
Overissue News	.80	@	.90
Old Newspaper	.55	@	.60

Domestic Rags (Old)

White, No. 1—			
Repacked	4.50	@	5.25
Miscellaneous	3.50	@	4.00
White, No. 2—			
Repacked	.02¾	@	.02¾
Miscellaneous	.02	@	.02¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	1.80	@	2.00
Black Stockings	3.75	@	4.00
Roofing Stock—			
No. 1	1.65	@	1.75
No. 2	1.40	@	1.50
No. 3	1.25	@	—
No. 4	1.10	@	1.20
No. 5A	.85	@	.90
B	.80	@	.85
C	.70	@	.80

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05½	@	.06½
No. 2 Kraft	.04¾	@	.05
Common Bogus	.02¼	@	.02¾
Delivered New England points			
Straw Board, rolls	37.50		
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board			47.50
Chip Board			45.00
Single Manila Pulp lined board	55.00	@	60.00
Single White, patent coated board bender	72.50	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.45	@	2.55
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.90	@	—
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.20	@	1.25
White Blank News	1.40	@	1.50
Old Kraft	2.00	@	2.10
Print Manila	.70	@	.80
No. 1 Mixed Paper	.47½	@	.50
Overissue News	.70	@	.80
Old Newspapers	47.50	@	52.50
Box Board, Chip	.65	@	—

Bagging

(Price f. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.75
Domestic	1.60	@	1.70
Manila Rope—			
Foreign	2.50	@	2.85
Domestic	3.00	@	3.50
Mixed Strings	.85	@	1.00
Scrap Burlaps	1.40	@	1.50
Wool Tares, heavy	1.60	@	1.65
New Burlap Cutting	—	@	2.00

Domestic Rags (New)

(Price f. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09	@	.10
Silesias, No. 1	.05	@	.05¼
New Unbleached	.09½	@	.10
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06	@	.06½
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04¼
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)

(Price f. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Thirds and Blues—			
Repacked	2.00	@	2.15
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.75	@	1.85
No. 2	1.25	@	1.35
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.55	@	1.60
New No. 1 Shirt Cuttings	9.00	@	10.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	4.50	@	5.00
New Checks & Blues	4.50	@	4.65
Old Fustians	1.90	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¾	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	14.50	@	—
No. 2 Coated and Litho	13.50	@	—
No. 3 Coated and Litho	12.75	@	—
Coated tinted	15	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Rag	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.60	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	31.00
Sulphite easy bleaching	62.00	@	—
Sulphite news grade	62.00	@	—
Sulphite, bleached	75.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk, News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.80	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.11½	@	—
Fancy Shirt Cuttings	.05½	@	—